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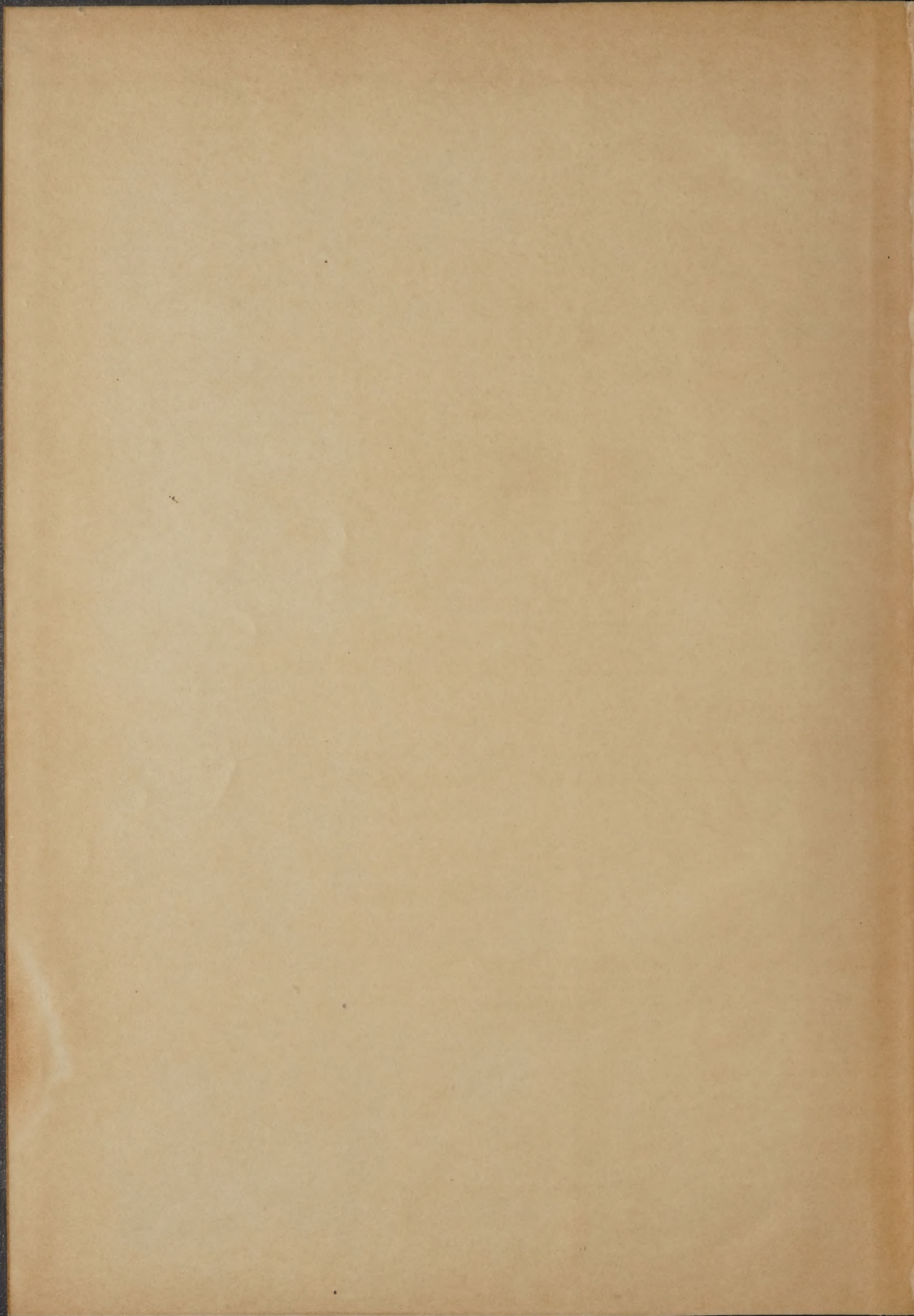
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IT is our aim, our ambition, our aspiration even, to build our Journal worthily and well, not for the hour only, but for future years; for the few men in the forefront of an enduring and a laborious Art; for the disciplined ranks of a distinguished Profession; for the young men—Architects to be—and for all who love a clustered column or a flying buttress, a traceried window or a Greek frieze, for the man, too, who honestly plumbs a jamb.

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An Architectural Causerie.

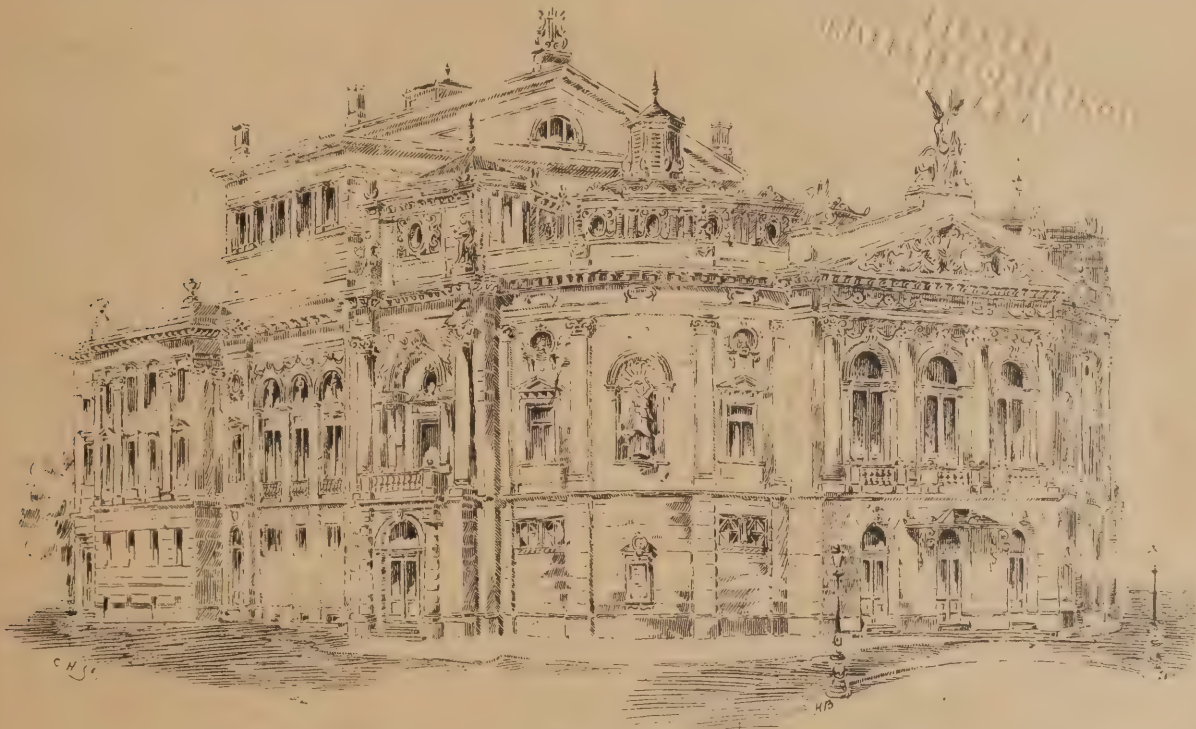
One's First Client.

IN due sequence and rotation one has cut one's teeth, fallen down stairs,

endured the mumps and, at different times, no less than three, measles; but none of these experiences were so humiliating in the fact nor provoked such irradicable disgusts in the mind as the experience of one's early clients. This is the more remarkable since while one accepted the above physical vicissitudes with

Profession, and, in one's humble way, one has tried to follow his example in this particular. The only misfortune is that one has failed to preserve one's clients with the same unvarying success with which one has preserved one's dignity. Since the first burst of one's early clients were disposed of, it is a fact that one's affairs have somehow languished. One's self-respect and sense of dignity is, nevertheless, strong and rampant, and all one desires is a client who will respect and appreciate these qualities. So far one has not succeeded; however, one continues to wait expectant. What has always oppressed one is the strange grotesqueness of the spectacle of a young architect assailed by his early clients. He is most like to a sheep engaged in gleaning its scanty livelihood, and several rooks companionable upon its shoulders, cheerfully tearing the wool it has been so long and laboriously accumulating to mend their nests, and doing it with a hollow pretence of benefitting the sheep by scratching its back. Personally, by reason of one's instinctive ingrained antipathy to a client in any form, one has only been victimised upon

and pressed cigars upon him to make up for one's past errors. One's client grew quite pathetic to see. He would regard us with a whistful eye, as he turned over how best he could seduce one to his table. At last, in a plaintive despairing key, he said, "Won't you stay here altogether? Wouldn't it be more convenient to you?" One assured him it would not. The work was completed; one's little account had been rendered; one was going abroad, one wanted cash; one went to lunch with one's client and say good-bye. The obvious occasion had come; it could hardly be avoided. One ate hardly any luncheon and refused wine. One never saw a man more broken in spirit than one's client; he yielded up the ghost of his intended parsimony there and then. One saw the moment of its passing; he was resigned to pay. He retired sighing. Then at one's departure he appeared in the hall. As he helped one on with one's overcoat one noticed a bit of paper in his hand. One recognised a cheque. One was held in a passionate interest for this scrap of paper, and kept a fevered eye covertly upon it.



"THE HOUSING OF THE DRAMA." MUNICIPAL THEATRE, LAIBACH.

an air of resignation and without any effort of resistance, yet one's resentments were always fully armed and all one's prickles out at the proximity of clients. One's prime natal quality is suspicion, and from one's youth onwards one has consistently regarded a possible or prospective client with a special blackness of distrust. It is an intuition—a natural instinct of self preservation. The sentiment first sprang, no doubt, from one's delight in first reading those delicious anecdotes of Pugin. If his greatness were established by no other qualities, it would yet stand unquestioned when we recall his magnificent air with clients. One remembers with highest relish the incident of the great Lord who visited the architect's office and attempted to interview him with his hat on. Pugin called his office boy, requested his hat and put it on. "Now, my Lord," said he, "we can talk." That of the Yorkshire parson is also refreshing. The parson wrote describing in terms of magnificence and splendour the parish church his heart desired, and mentioning the price he wished to pay. "My dear sir," Pugin replied, "Why not add 30s. and have a steeple while you are about it." Pugin did much to uphold the dignity of the

a single occasion, and then one managed to save oneself: one was paid in the end. This first client, before he became it, had passed as a friend. That is the essential of the characteristic early client. He is a friend. Upon a certain occasion this one was very brisk, and cheerful, and pleasant, said, "So you are an architect," and wound up with, "When you come north again on your holiday you shall alter my stables for me." Apparently it was a privilege to do the great creature's stables. One swallowed that, but one rose at the idea of it being a privilege to do them for nothing. By that time the works were commenced. One's suspicions were aroused by a nervous prodigality of one's client's hospitality; it was an economic prodigality but very lavish. "Have a pear?" (The biggest.) "Here, catch." "Cigar?" (A handful.) "Fill your pocket." "Cream?" (All of it) "Run for some more." Luckily one saw the strategy in time; how should one have sent in one's little account after four weeks of this sort of thing. Accordingly one became a total abstainer from the client's board. One declined to lunch, one declined dinner, breakfast, and tea; one sent the client game

The ceremonial *congés* were fearfully protracted. It was clear one's client could not bring himself to the point of actual delivery; he fumbled uneasily with one's cheque. In desperation one pressed a cigar; he refused it; the game was up. One saw the bit of paper surreptitiously hidden away in a waistcoat pocket. One said good-bye; but one's labours had not been in vain. A fortnight later the client wrote asking: "Had he understood that one's commission was 5 per cent. on the contract?" One assured him, "Yes, he had." B. C.

A Side Light on the Building Act. THE Metropolitan Building Act comes in for a good deal of abuse from the London architect. We wonder whether it has ever occurred to the said architect that this Act, besides being a standing nuisance, is also a standing reproach. It does not speak very highly for the standard of professional practice, if the municipal authorities have found it necessary to evolve such a fearful and wonderful com-

pilation to keep the architect from jerry-building. Yet this is what a great deal of this Act really amounts to. It also implies that the architect is not to be relied on to put up a public building with due regard to the public safety, that either he does not know or he does not care; so he is told how to construct an exit stair, and which way a door should swing. As it is well known also that every architect looks after his own interests, without the slightest regard for other people, and in utter contempt for the public health or convenience, clauses must be inserted to tell him how to ventilate a w.c., how much area space he should allow at the back of his building for proper light and inculcation of air, and, in general, how to carry out his duty towards his neighbour. We wonder whether architects ever consider how much of this is their own fault? Here we get an Act, full of minute and complicated information, instructing the architect in all those things on which, by the nature of his training and by the fact of his being an architect, he should be the better judge; giving expert information to the expert; in fact, teaching him his business. If an architect does not know his business, neither an official nor a parliamentary draughtsman can teach him it. Was this Act first compiled because it was notorious that the architects did not know their business? or because they could not be trusted to use their knowledge aright? or was it just an example of official meddling? However it came about, the existence of this Act does seem to carry with it a reproach to the Profession, whether deserved or not. But though an Act of this sort may be necessary, there is no reason why it should be so absurd. A treatise would have to be written, longer than the Act itself—both longer and more intelligible—to do justice to the absurdities it contains from an architectural point of view. It attempts to draw hard and fast lines, and to lay down precise rules, where neither is possible. Would it not be more reasonable and better for everybody if the Public Authorities were to devote their energies to obtaining a class of architect in whom they could trust; to raising the standard of professional knowledge and professional etiquette. As it is, they allow any unqualified person to practise, and then pile absurdity upon absurdity, in a vain attempt to safeguard themselves against his ignorance. If they would take care that no inefficient architect should practice, they would be able to allow the competent architect a proper and reasonable discretion. As it is, he has to submit to vexatious and humiliating restrictions, for the sake of the weaker brethren. It is fast becoming impossible to produce Architecture at all in the districts covered by this Act. It is a question, after all, whether a policy of enforcing such schoolboy rules really pays in the long run. We all know that the more cunningly devised the restriction, the greater is the glory in successfully evading it; and when an architect comes across such an absurd and chuckle-headed regulation as may be met with in the Building Act, is it to be wondered at that he makes it a point of honour to get behind the same?

A. R. J.

"The Gentle Art of Advertising."

It would be idle to deny the ascendancy which Americans have obtained over us in most matters requiring push and prominence; it is, however, doubtful if we should care to adopt the various methods by which they have attained their position. In the current number of "A. A. Notes," a contributor furnishes us with a few examples of advertisements by American architects, which he has culled from a maga-

zine. They all possess that "cheap jack" flavour which is so nauseating to the English palate, but is evidently suited to the taste of our American cousins. It must not be supposed, however, that there is any lack of ingenuity amongst English architects in advertising their qualifications, only they do so in a much more genteel manner. It is impossible, here, to exemplify all the methods of the gentle art of advertising, by which the architect can preserve all the decorum of professional etiquette and may, at the same time, secure a plentiful crop of clients. We must simply content ourselves with giving the uninitiated a few prescriptions of "puff" which have been used by architectural specialists with marked success. The theatre architect is, perhaps, more advertised than most specialists, it being a rule amongst theatrical clients to placard the name of their architect all over the building during its erection. This method of advertisement is so akin to the American that it lacks that subtle refinement which is the characteristic of the "professional architect." A much superior mode of procedure is to acquaint a Sunday paper, in the manner which most readily suggests itself to the mind, that Mr. "Architect Brown" has been commissioned by the famous actor, Mr. So-and-so, to prepare plans for his new theatre. The veracity of this statement is not in the least degree important. In the next issue the Sunday paper might contradict the report concerning "Mr. Architect Brown." Eventually if Mr. "Brown" persists in hauling his name before the public, he must get a theatre to build. He should, however, still keep the Sunday paper posted up with information concerning the building. We should recommend fortnightly insertions of his name during the progress of the work. We now turn to the "Art" architect, who is also an adept in the art of advertising. He generally writes articles in some non-professional magazine on a house he has designed, or hopes to design, illustrated with sketches or photographs. If the literary effort is a little beyond the Art architect he can always get a friend to write the article for him, care being taken that the architect's name appears in, at least, every other paragraph. He will gradually get quite an aristocratic *clientele*, possibly Royalty itself, in which case he should inform every newspaper, magazine, and periodical of the fact; after this he may cease advertising—his fortune is made. There are certain architects who don't know much about designing, yet at the same time have established a reputation as "authorities" on Architecture. This is done by writing a book on well-known buildings; the book being properly illustrated by photographs. Previous to the publication of the work, a paper should be read on the subject before some society; the pupils and office boy of the author attending the meeting in order to take the names of subscribers. An advance copy of the publication should be placed on the table. In concluding these few hints to members of the Profession, we would instil into their minds the desirability of signing their names on any building they may erect. Should they possess any degree, the fact should be recorded after their name: The stone, engraved in this manner, should be built into the wall at a height of about 6ft. from the ground level; it will then be certain to arrest the attention of the man in the street.

H. S. M.

ST. GEORGE'S HALL, Langham Place, was recently offered for sale by public auction. The competition was very slow, the first bid being £2000, advancing by bids of £150 until £2900 was reached, when the auctioneer announced that the property "had not been sold."

THE TRADITIONAL IN ART.

BY SIR W. RICHMOND, R.A.

SIR WILLIAM RICHMOND, R.A., in the course of the second of his series of lectures at the Royal Academy on painting, said: The study of history as it is related to the Fine Arts, was as important to the student of art as to the student of ethics. The past could be ours always. The achievements and failures of nations and of individuals were links of a chain that bound generation to generation. They were children of tradition—made up of it—and could not afford to let drop their hold upon its influences. The wise clung to traditions, and made progress by aid of them; the fool threw them away. The oldest were the best, because they were the roots nearest the seeds. His text, broadly speaking, was "Be constructive, not destructive."

THE ARTS AND CRAFTS

of Egypt, Persia, Babylonia, Greece, and Italy were grafted on ancestor-worship. They became exponents of various religious cults, but they exposed the lives of the people, religious, industrious, or pleasant, and were associated with the various movements of their national life. Finally they grew to be materialised expressions of abstract conception, and their highest expression arose from an abstract conception put into ideal human form. Such were the Zeus of Phidias at Olympia, and the Athena of the Parthenon, the Milo Venus, the Ilissus, the Adam of Michael Angelo, and the Sistine Madonna of Raffaele. Individually, as well as collectively, art had been handed down by various systems, personal or gregarious. Personal tuition implied attendance in the workshop, where apprentices were taught their art, from grinding colours and preparing walls to painting pictures; in the crafts, through guilds. In sculpture and Architecture alike the apprentice worked by rule, adopting his master's style. If he were of pronounced mental activity he added to what he acquired; if he were only a good workman he remained a good workman—and that was a worthy achievement, was it not? It was far from unnatural that artists should be inclined to refer to

THE PAST AS THE TEXT

of what should be; living as they did mainly in an overgrown city, in many parts ugly, always dirty. Yet they were the chosen people to reveal beauty—to satisfy a want in the heart of a population, much of it struggling for bread, most of it fighting for riches, and many gambling away fortunes. If Art were once more to take her place and to throb in the lives of every class, it must express national and colonial life by the scope of its application: prosaic, but poetic also. But while that was being done by what one might term journalistic art—very valuable of its kind—the greater arts of painting, sculpture, even Architecture, were in danger of losing touch with traditions. The lecturer then gave a rapid view of Egyptian, Greek, and Pompeian painting, illustrated by a large collection of photographs arranged upon the walls, dwelling especially upon the portraits recently discovered in Egypt, of which specimens were in the National Gallery. The "Aldobrandini Marriage," of which a copy, made by the lecturer's father in 1837, was also shown, was referred to as having itself formed a school, especially in France, of the neo-classic type. All the great Italians were

PROFOUNDLY INFLUENCED BY CLASSIC ART.

Among them Pinturechio produced, perhaps, the most complete and, in some respects, the most beautiful decorative work of his period—the Camera Borgia, ordered by Alexander VI. He did not know any work of the kind more lovely in design and colour. Portions of the Camera were shown in facsimile in the South Kensington Museum, and he would strongly advise any of them who contemplated decorative art as their profession to make that work their ideal. The works of the Byzantine school, of Cimabue and Giotto, the wall paintings at Subiaco, and the mosaics of the Baptistery of Florence were afterwards referred to.

THE HOUSING OF THE DRAMA.*

WITH SPECIAL REFERENCE TO SUBSCRIPTION AND ENDOWED THEATRES.

By EDWIN O. SACHS,

Author of "Modern Opera Houses and Theatres," &c.

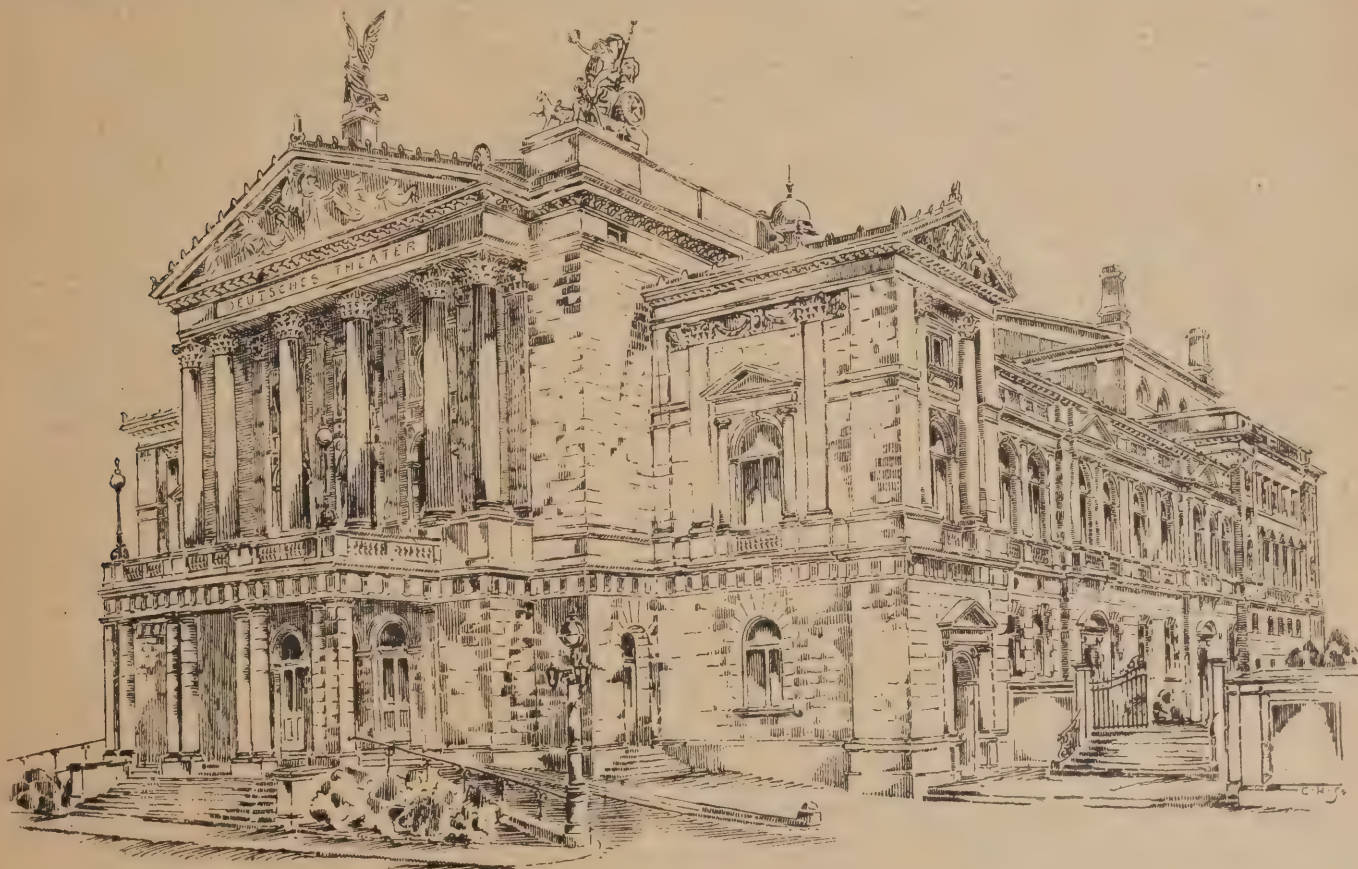
IT is the housing of the Drama of which I wish to speak, neither more nor less, and I may as well at once say that the use of the word "theatre" in the title has been purposely avoided, for when speaking of the theatre we are too ready to associate with it the many forms of entertainment which require an auditorium and a stage—from grand opera to the variety show. Similarly, such terms as "planning" and "construction" have been intentionally omitted. To have included

his client's instructions to the best of his ability without dealing with the purpose or object of the building from ideal points of view, much less trying to influence his client in this respect. At the present time, however, I am glad to say that we have architects like Mr. Aston Webb, who will go so far as to give such prosy themes as a grain warehouse an architectural treatment of the very highest order. Moreover, we have architects who consider that they have a higher mission than the mere welding together of bricks and mortar. They intend to beautify our cities and give dignity and importance to our public institutions, and even if commissions do not fall their way, they do everything in their power to see that we are saved from further eyesores. It is to those to whom I address myself chiefly when I deal with the "Housing of the Drama" not as a question of construction but as a question of policy.

Now, when speaking of the one form of entertainment under consideration—the Drama

private theatres cannot be considered otherwise than as having their basis in commercial enterprise. This commercial spirit is but rarely shaken off, even by a management of the highest order.

The home of the Drama in the Metropolis is sometimes a building owned and managed by the same person, who is a manager or actor by profession, or similarly owned and managed by some combination of persons (a syndicate or company), who undertake the direct control of their house through one or more of their number. More often, however, the owner leases his building for terms varying in length from a few nights to a number of years, and the lessee may be an actor, a manager, or, again, some syndicate or company formed for the presentation of an individual play, or a series of productions. In the first case, that in which the theatre owner conducts his theatre directly, his holding principally resembles that of a theatrical business; in the latter case, where he leases his building, the



"THE HOUSING OF THE DRAMA." SUBSCRIPTION THEATRE, PRAGUE. GENERAL VIEW.

either would have compelled me to deal with the playhouse solely from its architectural or technical aspect. That is not my intention, the less because the Institute has already witnessed several interesting discussions on the building and equipment of the modern theatre at home, on the Continent, and in America. In fact, many questions of detail essential to the construction were then so ably dealt with that I should only be traversing old ground; hence, I have ventured upon a contribution on broader lines. I shall endeavour to treat of some of the aspects under which a playhouse devoted to the production of Drama can be constructed not only as a temple of Art, but also as the pride of the nation or community to which it belongs. These aspects demand the attention of the architectural and allied professions, for without the assistance of the architect of to-day and his co-workers, the successful issue of any movement for a better class of building is almost impossible. I say architect "of to-day" advisedly, for it is not many years back that the architect considered it was his only duty to carry out

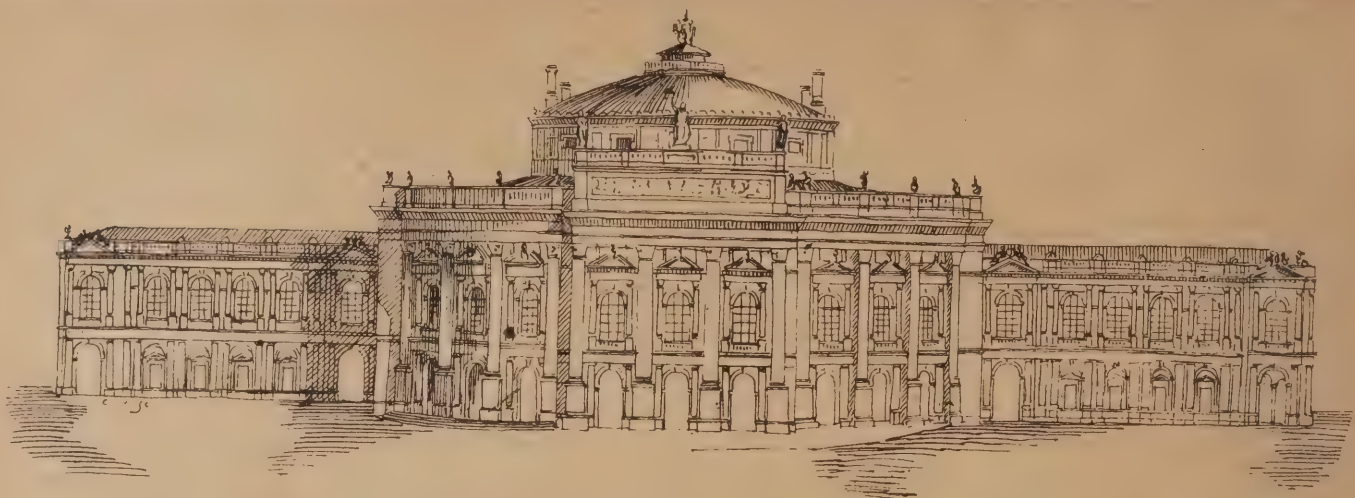
—as distinct from the opera or the lighter forms of amusements, it would be well to bear in mind that this includes comedy and tragedy alike—the chamber play as well as the Grand Drama—in fact all such presentations of plays which are given with due regard to art and literature as well as for purposes of education, with the object of dealing with serious problems, or for the recreation of the cultured. I am afraid I must exclude the melodrama, and even the ever-popular modern farce.

I ask, then, how the Drama, in its highest sense, is housed to-day? How is it housed in the Metropolis, how in the provinces, how abroad? And what principles guide the constitution of the home of the Drama? What is the basis on which buildings devoted to the presentation of plays are erected? The answers to these questions are all important when considering whether a playhouse fulfils the function for which it is provided. They are also essential if we wish to know the lines on which a modern playhouse should be built.

To begin with, let us remember that London has no other form of playhouse than what is termed the Private theatre. However high a standard may be reached by productions associated with its individual examples, these

property may be considered an investment, which the lessee can use for his own special purposes. The latter may, if he prefers it, make money by pandering to an inferior scale of public taste, or he may wish to entertain, with due regard to art, to educate his audience, to amuse it, or both. He may conduct the theatre with high ideals, or otherwise. But, with very few exceptions, it is inevitable that the theatre owner and theatre lessee must bear in mind the cost of land and of bricks and mortar. Some owners or lessees may have been granted voluntary support or subsidies as regards special efforts on their part. But, as a rule, whether built for direct management or as an investment, the site, the building, and the equipment of a London playhouse are plain questions of rent-roll and £ s. d. pure and simple. What is more—the London playhouse is but seldom erected by the man who can sail an easy course with a large banking account at his back. With few exceptions, we find a most complicated financial basis, in which questions of option, of mortgage and the like predominate. The same holds good for our provincial centres, with one exception, that of the Memorial Theatre at Stratford-on-Avon, which has a special building fund voluntarily

* A paper read before the Royal Institute of British Architects on Monday night.



"THE HOUSING OF THE DRAMA." COURT THEATRE, VIENNA.

subscribed, with the view of erecting a monument to Shakespeare. The same state of affairs also exists in our colonies, and with one or two exceptions in that other great English-speaking country, the United States.

But on the Continent what do we find? Among Latin countries in the South of Europe we certainly meet with the Private theatre to a considerable extent. We also find the Private theatre in large capitals of the Teutonic countries in Northern Europe. We further have the Private theatre, which is subsidised by the State or otherwise, notably in Paris and Northern Italy. The Private theatre, however, is not the typical home of the Drama for the Continent. Principally the Municipal theatre, the Subscription or Endowed theatre prevail, and also to a certain extent Court and National theatres, though as a rule the Governments or Courts of Europe only possess opera houses or large playhouses intended for the presentation of both opera and drama. Now the purposes of a playhouse, when not conducted as a money-making concern, as is necessarily the case with private theatres, can be (1) for the satisfaction of luxury; (2) for educational purposes; or (3) for recreative purposes, or for the realisation of any two of these intentions, or even all three.

Commencing with the Municipal theatre of the Continent, its object is generally educational and recreative, the low price of admission enabling all classes to witness the performance. Beyond the original outlay on the building, the ratepayers may either allow some annual vote towards maintenance, or they may simply guarantee to meet any deficit, should there be one. It is merely a question of a good stage management and the judicious pricing of admission, for as there are no profits to be made, the plays should practically be presented at cost price. It is not my purpose here to describe on what lines such theatres are managed, but I would impress upon you that the Municipal theatre ranks with the highest of the public institutions of any community, and the building which stands as a local monument generally embodies all that the community can afford to give in art and excellence of workmanship.

Next the Subscription theatre, which differs only from the Municipal theatre as regards origin. It is not the property of the ratepayer, but a gift presented to them, sometimes by one or more of their wealthy citizens, at other times by a large section of the community who voluntarily desire to participate in providing the city with a suitable playhouse, and who contribute from a few pence to some thousand pounds, according to their respective circumstances. It is true that such Subscription theatres are not infrequently managed by the municipality on the same lines as the Municipal theatre, the donors having presented the playhouse to the public authority, and the municipality having undertaken to administer it on the same lines as a municipal establishment. It is thus that we get the so-called "city" theatre, which, though for all practical

purposes a municipal institution, yet differs from it by the manner in which it was brought into existence. On the other hand, we have the bona-fide Subscription theatre, managed by the representatives of the subscribers, or by trustees; the municipality, however, having perhaps, also contributed to the fund in some form or other, such as by a grant of money towards the building, an annual grant towards its maintenance, or even, as is often the case, by the gift of the site. Then, again, we have the institution which is managed by the subscribers themselves, who, however, in some cases hold the actual building in trust, some rich citizen or citizens having built a playhouse, and then having handed it over to a general body of subscribers, who equip it, and undertake to manage the establishment, guaranteeing any deficit in the usual way. Lastly comes the Endowed theatre, for which land and building are presented, together with a sufficient sum put in trust to cover the maintenance of the block, and any reasonable deficit on the productions. It is the bona-fide Endowed theatre of this description that rightly ranks with some of those generous gifts of endowed picture galleries, public libraries, and artisan dwellings for which this country is distinguished.

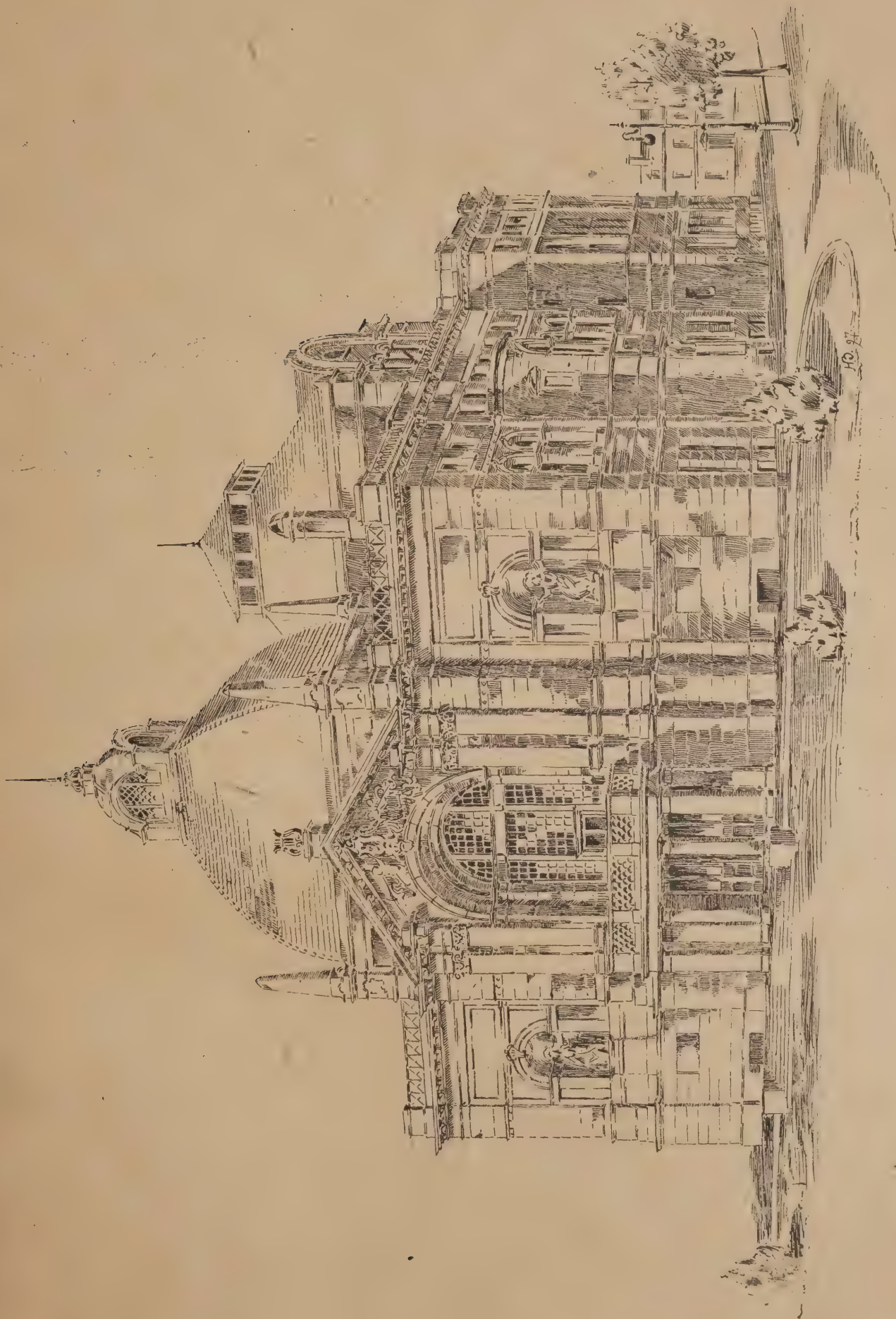
The most recent form of the Subscription theatre, by-the-by, is the "People's" playhouse, voluntarily subscribed for by every class of the community, and conducted on co-operative lines, while a particular form of the endowed institution is the playhouse which has been provided for on philanthropic lines, for the entertainment and elevation of the working classes in the same way as many of our free libraries are established.

Now each of these—the Municipal theatre, The Subscription theatre, and the Endowed theatre—is essentially a public institution. The standard of its founders is a high one, and where this is the case it follows that the conception and rendering of both interior and exterior—in other words, the architectural lines—ought to attain an equally high standard. The Municipal theatre practically always stands as a monument to the prosperity and culture of a locality, and the Architecture of a Subscription theatre is intended to give a similar impression. A certain spirit of rivalry between different localities also effects the architectural treatment; for the Municipal or Subscription theatre generally becomes the show place of the locality, and it is not infrequently used for purposes of ceremony and hospitality. In many respects it is also the assembly room for all classes. As suitable law courts should emphasise the dignity of justice, and a Government office should indicate the centre of authority, so should the playhouse embody the social status, the culture and prosperity of the community, and this I am glad to say is generally the case on the other side of the Channel.

But let me at once say that not every Subscription or Endowed theatre, nor every Municipal theatre, is erected solely for the

presentation of the Drama, though there are many instances where this is the case, and only recently I have heard that the city of Frankfort, which already has a magnificent subscription opera house, is about to have a municipal home for the Drama as well. Not infrequently such playhouses are also intended for the presentation of opera. A playhouse may be built particularly as the home of the Drama, but it may be arranged so that opera also can be presented. The opposite is often also the case, that is to say, a municipality has its opera house in which Drama is presented, and besides the regular opera company, there is a regular dramatic company. As, however, we are speaking of the "Housing of the Drama," it is not a question of immediate importance whether the building is used for other purposes than that for which it was originally intended, or whether Drama is temporarily produced in what we might term an opera house. The only point we have to bear in mind is that one and the same building is frequently technically unsuited for the two purposes. A building intended for the presentation of the Drama, and well balanced in its proportions, becomes "dwarfed" in feeling, if I may say so, when grand opera is presented in it, whilst *vice versa*, all the beautiful effects in acting a chamber play are lost in a building designed primarily as an opera house. Now this can be the case, and is sometimes the case in the Municipal, Subscription and Endowed theatres, but as a rule, we may take it that this unsuitable combination is one of the characteristics of the National and Court playhouses. Of course, there are also National and Court playhouses identified solely either with the Drama or the opera, for Vienna has its opera house as well as its Court playhouse. The Czar's theatre administration has together seven playhouses, three of which are devoted to the Drama. Berlin has its "Schauspielhaus" as well as its opera house.

But what is a National or a Court theatre? I have said theatres originate either from a commercial object, for the gratification of luxury, for educational purposes, or for recreation. Now, the Court theatre is peculiarly the luxury of royalty, established and maintained at the expense of the reigning monarch, though generally open to the admission of the general public on a certain payment, except when reserved entirely for some Court function. The Court playhouse is generally the pride of a continental monarch. He uses the building for the entertainment of his guests, for public receptions, and the like. Whether the production be an opera, a play, or a ballet, is often quite immaterial as long as the production is of a high standard, and does credit to the culture of the Court. Being the outcome of luxury, the Court playhouse, however, frequently becomes a veritable palace of luxury, for nowhere is the play more sumptuously housed than in these Court establishments. This lavish style of housing is, however, not so much due to any desire to give the play dignified surroundings as to give the



"THE HOUSING OF THE DRAMA," MUNICIPAL THEATRE, ROSTOCK.

Court a suitable place of entertainment. Practically the same description holds good for National and Government theatres, with the exception that the institution then becomes the pride of the nation at large, and a suite of reception-rooms for the Government. The educational objects put forward by Government are, I am afraid, merely an excuse in such cases. As the Court playhouse is a symbol of the power, means, and culture of a reigning monarch, so does the Government theatre indicate the resources of the State, and the architectural pretensions of the building vary according to national influence and wealth, quite independent of any idea of suitable housing dramatic art.

Now, as I have said, the presentation of opera or drama is often combined in the Court or National buildings, many Courts and Governments having only one playhouse, whilst employing two or even more companies for the presentation of the different forms of entertainment. As I have indicated, however, this system does not lend assistance to the proper housing of the Drama, for no art requires so careful and studied an environment. The greatest attention should be given to questions of proportion, even to the extent of the designer weighing the preferences of an audience in favour of grand drama or chamber drama. The same house, which may be suitable for the presentation of a great Shakespearean play, is by no means desirable for some little character sketch with a cast of only four or five individuals. The administration of the Court Theatre at Vienna has recognised this, and, whilst at the present time it controls the most beautiful home for the Drama that exists in the world, it has yet deemed it necessary to consider the advisability of erecting another Court Theatre devoted entirely to chamber plays, leaving the grander house for the presentation of great classical plays. It is too ridiculous to find the *Comédie Française* company playing at Drury Lane, and grand opera at Daly's Theatre. Nothing could be more incongruous. I will even go farther. I will say that whilst Her Majesty's Theatre is by no means too big for the presentation of "Julius Cæsar," I should much prefer to see "The Liars" given at the "Criterion" than at the larger house in the Haymarket. Eight hundred, with a maximum of one thousand, should be the extent of an audience for a chamber play if every individual in that audience is to appreciate the acting. For "Julius Cæsar" there is no reason why the auditorium should not be capable of holding two thousand people. In the same way, I see no reason why the opera house should not hold an audience of three thousand.

(To be continued in our next issue.)

Mr. Bernard Shaw, who opened the discussion, humorously observed that his education in Architecture had been very considerably neglected. I am not, he said, in the habit of going to places where there is much Architecture. Mr. Sachs has spoken of the opera as being something which always requires a very large theatre. That is really no more true of the opera than the drama. That is to say, there are operas which require a small theatre, just as much as certain plays require a small theatre. On the other hand, there are operas which require large theatres. You may have three thousand people at an opera, yet to produce the operas of Mozart—which are admittedly the greatest ever written—in a large theatre simply murders and destroys them. In England we hardly know anything of the operas of Mozart. Then what are the

DIFFICULTIES IN THE WAY

of getting public and endowed theatres in this country? You have to consider you have a condition of public feeling in England which, as far as I know, does not exist on the Continent. The majority of the population in England do not think about these things at all; they do not believe in the theatre as a Temple of Art or a centre of learning, but condemn it as the gate of hell. That is a tremendous difficulty in your way, but when you propose to endow the theatre from rates and taxes, you would immediately get the whole body of ratepayers

against it. To give a practical illustration, I am a member of a local government board in London, and we occasionally receive deputations on various subjects. The other day a deputation came up and consisted of one person. He was a gentleman connected with a theatre, and he wanted to erect a theatre in our parish, and required the power and support of our body. We asked what we could do for him, and he then said the fact was a clergyman was opposing him. The reverend gentleman, he said, had a mission hall next door to where he was going to erect his theatre, and the clergyman had appealed to the Ecclesiastical Commissioners who owned the land upon which the theatre was to be built not to sanction the erection of a theatre on the ground. He was perfectly aware that a recommendation from the Commissioners would have very great weight. No one would dream of remonstrating with the Ecclesiastical Commissioners when they are opposed to having a theatre. I believe that is the feeling against which we should make a very strong objection. No doubt the number of people who get modern ideas from the theatres is very small in comparison to those who get them from the churches, and yet we must not forget that the former is an enormous body. Another

OBSTACLE TO THE ENDOWED THEATRE

is this: Englishmen believe in private enterprise, and that includes taking pretty good care of the theatre. The speaker proceeded to make reference to the competition between the multiplicity of suburban theatres with the great central theatres in London, remarking that the latter had charged large prices for most worthless entertainments, and the people in the suburbs were beginning to find out that they could get good entertainments cheaper and with more comfortable hours. So he believed the central theatres would be enforced to undertake higher skill and a better class of work. The only plays, he continued, for which you really want a sort of endowed theatre are unfortunately those with regard to modern manners, and upon which there is a considerable division of opinion, even amongst the people themselves. As far as Shakespeare is concerned, you will find it very hard to persuade the ordinary enterprise to take care of those plays, but when you give the plays of Ibsen and others of the Modern School, then it is you find the people want to see these again. I am rather afraid, though, that if you go to the London County Council and ask them to supply a theatre for a particular kind of play, you will find some difficulty about it. In conclusion, Mr. Shaw expressed his warm sympathy with Mr. Sachs's paper, and provoked amusement by drawing the attention of architects to the condition of the crossings in London as he had seen them when leaving the theatre.—Mr. William Archer, who had also been invited to take part in the discussion, said we suffer a great deal from the general

ESTIMATION OF THE THEATRICAL ART

in England—that most theatres are disguised gin palaces, or, at any rate, if not disguised as such, then they are sandwiched between two gin palaces. The effect of an architectural rendering of a building which would give people the sense of going to an entertainment which is, I will not say solemn—that is rather too strong a word—not entirely and merely a pastime, would, I have very little doubt, raise the instinctive idea that people have formed of the Drama. I think the manager who wanted a vestibule which would make people cross themselves was not entirely wrong. A Subscription and an Endowed theatre, I should say, are practically the same thing. I agree that we might put aside the city or municipal place of entertainment. I think it is outside practical politics. It is easy to say, Why not have endowed theatres if endowed picture galleries and museums? The reason is plain. A picture gallery and a museum exist and do not require management, "or to be carried on."

A PICTURE GALLERY OR MUSEUM is built, and people go there, or do not go, and it simply exists. But a theatre has to be

managed. Of course, we have the old plays of Shakespeare, Sheridan, and Goldsmith, &c., but no theatre can subsist entirely upon these. If the theatre supplies thoroughly good plays, the outcome of the life of the day, represented by living men, and does not represent living literature, then the theatre is a monument; but if it is not a living institution, I do not think it is worthy of support. Commenting upon the different kind of plays, Mr. Archer took exception to Mr. Shaw's recommendation of Ibsen. We have, he said, all the Ibsen we want. Any national or endowed theatre that made Ibsen the plank in its platform would be giving away its case entirely. I think the idea Mr. Sachs has mooted is in the air, not only in Manchester, but throughout England. I think Mr. Sachs has largely contributed to qualify our views upon the point by the plans of monumental work here. He has shown us that the theatre can be and ought to be a beautiful and worthy building. I cannot help thinking that a greater realisation of what can be done in theatre construction has been brought home to us, and the absolute meanness and

DESPICABLE APPEARANCE OF THE LONDON THEATRE

Architecture, as it at present exists, must kindle the spirit of patriotic enthusiasm in anyone studying Architecture. The great difficulty in London is that we have no local patriotism. London is too big for it, and that is why I think we shall have one such theatre in the provinces before London. But if we have not local patriotism in London we might have Imperial patriotism, and after all it would be a worthy theatre in London to represent that; it would be a political instrument of no small importance, the rallying point for the English-speaking world, but we do not quite realise it. I cannot help thinking that some one of the millionaires of whom we hear so much has here an unique opportunity for founding for himself a monument. I am quite sure that whether such a theatre is the result of subscription or the munificence of a single man, it is looming ahead.—Mr. Alfred Darbyshire, of Manchester, expressed his entire acquiescence with Mr. Sachs. In the matter of theatrical Architecture, he said, we English people are greatly behind the Continent. We have not produced in England a single architectural triumph in theatrical Architecture, so far as I know; and I have arrived at the conclusion that, under present conditions—that is, under private enterprise and speculation—we never shall reach the height of the lovely things we see abroad. It is very sad, but it is very true. When an architect has to design a theatrical façade on a site hemmed in with other buildings, he can do nothing, and, therefore, as long as our

PRESENT CONDITIONS

obtain, we shall never have a chance of producing anything worthy of what we see abroad. Mr. Darbyshire concluded with a tribute to the memory of Mr. Phipps, who, he said, had done the best that could possibly be done under existing conditions when he designed Her Majesty's Theatre in the Haymarket. Mr. Cecil Raleigh assumed the role of comedian in the discussion. After a humorous preface, he asked: What does it matter what a theatre is like outside?—If you are walking along some thoroughfare, and you see a perfect dream in the exterior of a theatre, you remark "Is it not lovely?" "Yes, but have you seen the play inside?" That is the point. It really does not matter what the outside of a theatre is like. The perfect theatre is the house where a play can be produced to the greatest advantage, and if the outside consists only of four square brick walls, it really does not matter a cent. A vote of thanks to the lecturer concluded the discussion.

At the meeting of the R.I.B.A., on Monday, the Chairman (Mr. H. L. Florence) announced that the Council had decided to recommend to Her Majesty the Queen the name of the President (Professor Aitchison, R.A.) for this year's Royal Gold Medal.

THE

Institute Prize Competitions.

CONSIDERING that the Soane Medallion is not awarded this year, with which decision everyone must agree, it might, perhaps, be more useful to make some remarks about the site given for this subject, rather than the designs submitted.

The subject is a concert hall to seat 3000 people. The site is a rectangle at the corner of two streets, with 100ft. frontage and 160ft. depth, with no right of light on the left hand side or the rear. This is as good a site as is likely to be provided for such a building in London; but then, in London, these matters are not understood. In any other capital city, or even in any second rate French or German town, an isolated site would be considered necessary, and, if possible, would be provided for a building of this character and importance. It is surely not exactly in accordance with the dignity of Architecture, that the Institute should take its ideas for the treatment of public buildings from the Corporation or the L.C.C. Its attitude should rather be one of protest against the prevailing mismanagement. It should steadfastly hold up

create monstrosities when we are obliged to do it by the force of circumstances.

It is not that this particular site is a particularly bad one; on the contrary, it is relatively good. The Academy last year, for instance, gave a site for the very same class of building which was even ten times worse; but there is no reason why it should not have been better, even perfect—there is nothing to pay for it. You cannot get a perfect building without a perfect site to stand it on; as far as this site falls short of perfection, so far has the Institute deliberately insured that the designs shall fall short also. Worse sites are often seen; but a protest can be entered against this as well as against a worse, for the principle of the thing is wrong.

The Tite prize this year attracts the greater number of students, perhaps because the Soane is made rather difficult. The subject is, "A Villa and Ornamental Garden in England in the Italian Style," with "a riverside area of two acres, not necessarily level." The competitors may have been in some doubt as to the exact meaning of this title, and the construction to be placed on the words "in England." It suggests neither one thing nor the other. If a villa is in the Italian style, it is, and therefore is, in the nature of things, unfitted for English climate and requirements.

and occasional heavy snowstorms. The top-lighted w.c. in the centre of the building attached to the billiard-room may be Italian, but it certainly is not in accordance with English ideas of sanitation. It looks as if this could have been so easily avoided by placing this lavatory on the other side of the billiard-room, where it would have been against the outer wall. The space it now occupies, forming a sort of arcade in the conservatory, would have been an improvement to that room, and would have made a better suite of the three rooms.

The summer houses, terraces, &c., in the garden are not very Italian, and perhaps the steps and different levels are not particularly well arranged.

In fact, in most of the designs the laying out of the gardens is the weaker part; but considering how little this subject is studied in this country, this is not to be wondered at. It seems a pity that a section, right through the grounds from back to front, was not asked for, it would have explained the levels and the general setting out of the schemes so much better.

A medal of merit goes to Mr. Thomas A. Pole for a design which is more English perhaps in character. The house is spread out over more ground, and is roofed in a way that suits this climate better.



SECTION THROUGH DRAWING ROOM, HALL, DINING ROOM & CONSERVATORY.

AT THE R.I.B.A. DESIGN FOR A VILLA. THE TITE PRIZE DRAWINGS. BY JOHN S. LEE.

Reproduced from a tracing.

an ideal standard. In no way can it help more effectually in securing better arrangements in the future, than by impressing on the rising generation a true conception of what a public building is and of how it should be treated.

A concert hall is for the public use, and is a public monument which should be a complete and independent work of Art, expressing its character in its general setting out. Complete unity of conception and artistic expression, is impossible where the building is jammed against others on two sides.

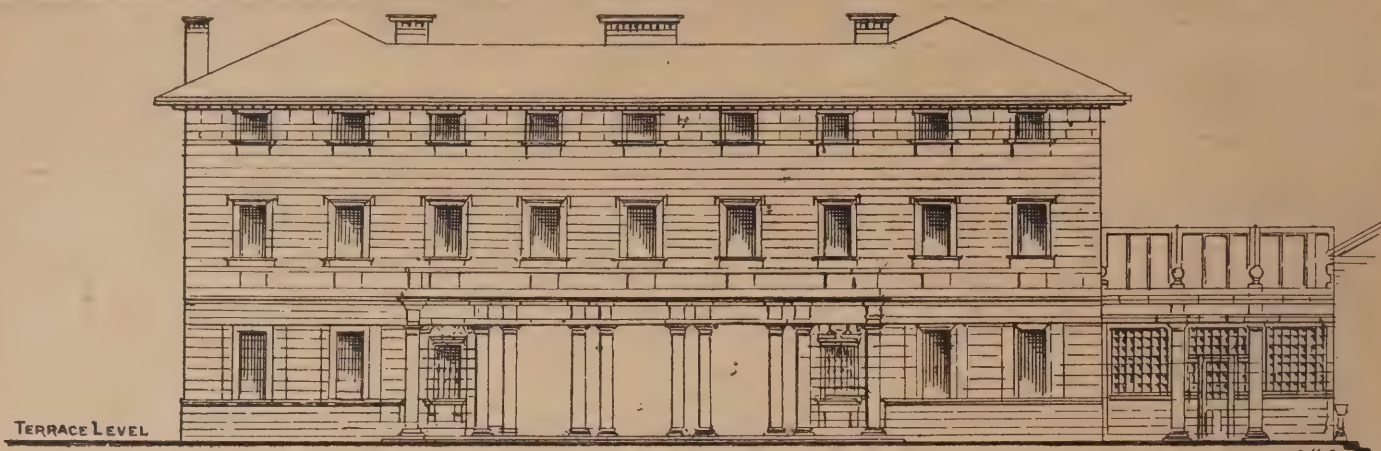
To gratuitously provide a site like this, on which no building, which entirely covered it, could be anything but a cripple, is to insure failure from the start, and it tends to give the students the idea that this site is all that can be desired. It lowers their ideas of what such a building should be like, and it has the serious effect of weakening and disarming all protests against public mismanagement in the choice of sites for public buildings, for with what heart can we protest while the public can plead the example of the Institute itself, which it considers to be our representative Society. To choose deformed sites for these students' competitions—because they are the sort of thing they will eventually have to deal with in practice—is no better than to insist on the students of sculpture designing cripples, and studying badly-proportioned models, because they will eventually have to erect monuments to battered soldiers and sailors and overfed aldermen. It is time enough to

If alterations are made to suit these—which the inclusion of the words "in England" suggests—the peculiar characteristics of an Italian villa are necessarily destroyed, the building is no longer in the Italian style; for it is just these characteristic arrangements that give it its style, not simply the use of Renaissance columns and mouldings; so that it seems difficult to know how to carry out the programme, and, at the same time, to produce Architecture. To design an Italian villa is a study of great value to the architect, but to distort it to suit other than its natural requirements is to destroy its peculiar charm, and the exercise of this particular form of ingenuity is no help to the student, and its result is—with all respect—not Architecture. From the wording of the programme this is what the student is expected to do, and this is more or less what has been done by all.

The prize has been awarded to Mr. John Stevens Lee for a design, which—taking it as we find it—emphatically deserves this honour. It certainly possesses undoubted merit. The plan is simple and well constructed, and the building is treated with a simplicity and reticence that is distinctly pleasing. But, at the same time, there are arrangements introduced which are suited neither to English climate nor ideas. The central hall is top-lighted at the first floor level; this gives a flat with skylights at the bottom of a central area or well. To drain nearly half the roof area into the centre of the building is good in no country, least of all in England, with its continual rain

Of the remainder, that by "Tiber" strikes one as the best; the plan is straightforward, the elevations are simple and rather pleasing, though they are hardly Italian in character, and are spoilt by the two pavilions on the roof, which do not look well, and which stand on nothing.

The subject for the Grissell gold medal is a small country church, to seat 200 people, constructed entirely of wood. As this prize is given "for the encouragement of the study of construction," it seems a pity that so many of the competitors should have devoted so much time to the production of "artistic" drawings, for it is noticeable that the more "artistic" the drawings, the less has the construction been explained. Several competitors have wasted much time in evolving strange hieroglyphs in the corners of their drawings by way of titles. Is this part of the "artistry"? They are certainly most illegible, if this is any proof of Art, and many of them are passing ugly, which is a convincing proof. The medal has been awarded to Mr. Harbottle Reed, and a medal of merit to Mr. W. Stanley Bates. It is impossible, without going carefully into the calculations, to appreciate all the points for and against these designs; but what strikes one at the first glance is that both these designers introduce wood buttresses like embryonic shores or needles. Is not this rather opposed to the first principles of timber construction? Does not the essence of good artistic construction consist in making use and taking advantage



ELEVATION TO TERRACE

AT THE R.I.B.A. DESIGN FOR A VILLA. THE TITE PRIZE DRAWINGS. BY JOHN S. LEE.

Reproduced from a tracing.

of the peculiar nature of the material, to obtain effects characteristic of that material? Is it not a characteristic property of wood, as distinct from stone, that it is capable of tension? so lending itself naturally to a system of ties. Should not a wood roof truss be framed up in such a way as to throw no thrust on the wall? Would it not be more characteristic of the material? The buttress is a characteristic feature of the stone vault, not of the wooden roof. There is, unfortunately, precedent for the construction of wooden roofs which, not being properly framed up, need buttresses, such as the roof of Westminster Hall; but this sort of roof is not characteristic of timber construction, and there is no obligation to follow a bad precedent. Where the weight of the whole roof is brought down to a few points by the trusses, it is natural, perhaps, to strengthen these points of support; but it should not be done in such a way—the support should not be given such a form—as to suggest a thrust, which, if the roof is properly framed, does not exist.

A. R. J.

A NEW gaol is being erected at Sierra Leone at a cost of £20,000. Waterworks are also to be constructed, and will cost the colony about £30,000.

An enquiry has been held at Falmouth concerning the application of the Corporation for sanction to borrow nearly £4000 for the purpose of street improvements.

THE foundation stone has been laid of an infectious diseases isolation hospital at Sealand which is to be erected at a cost of £14,400. Mr. H. Berwick is the architect, and Mr. W. W. Freeman the contractor.

ALNWICK CASTLE, according to a learned antiquary, owes its origin to the Romans. It is one of the largest Gothic buildings in Britain, containing about five acres of ground within its outer walls, flanked with sixteen towers and turrets.

A UNIONIST CLUB has been opened at Salt-coats. The building is situated in Nineyards Street, and is of two stories, containing commodious reading room and committee rooms on the ground floor, and a billiard room and caretaker's apartments on the first floor.

AN important improvement is being carried out on the front at Clacton-on-Sea, which will add very much to the attractiveness of the town. The scheme includes the construction of a spacious marine promenade, the extension of the much-favoured garden terrace along the cliff, and the erection of commodious and comfortable shelters.

THE Skipton Board of Guardians has decided to adopt provisionally a plan of a new infirmary, based on the design carried out in the Knaresborough Union Infirmary, and has instructed the architect (Mr. J. Hartley, Skipton) to wait upon Mr. Gordon Smith, the Local Government Board's architect, and ascertain what, if any, modifications were necessary.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

February 9th, 1828.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

WE have pleasure in calling our readers' attention this week to the publication of the first number of SPECIFICATION. For a period of twelve months the editorial and managerial staffs have been engaged upon the careful and painstaking production of what the Proprietors hope will prove to be the leading technical authority in matters of construction wherever the British system of building is in vogue.

OWING to the growth of material for the work, and the laborious nature of verification, the Editors have to acknowledge some delay in the issuing of SPECIFICATION; but the delay has had the advantage of enabling the scheme to be the more perfected, and they see the completion of the first number feeling confident of its appeal to architects, surveyors, and engineers when specifying, and, in fact, to all interested or engaged in building matters. The Proprietors desire to place on record their acknowledgment of the exertions of the Editor-in-chief and of the various Sectional Editors of the thirty-seven sections of which SPECIFICATION is composed.

THE Edinburgh District Lunacy Board has invited Scottish architects to submit competitive designs in connection with the establishment of a lunatic asylum which it is proposed to build on the estate of West Bangour, in the parish of Ecclesmachan, Linlithgowshire, about two miles west of Uphall. It is intended,

in the meantime, that accommodation will be provided for 600 patients, though suitable provision will be made for extensions whereby 1000 will be accommodated. Only architects in Scotland who have been in practice on their own account for not less than two years will be permitted to compete. The architect selected by the Board will be employed to carry out the work at the rates of remuneration, and under the conditions contained in the schedule, sanctioned by the Royal Institute of British Architects. If from any cause the buildings are not proceeded with, and no drawings other than the competitive drawings have been prepared, the selected architect shall receive a payment of £500 in full of all claims. In respect of the other competitive designs, four premiums will be paid in the following order: £250 to the author of the design adjudged to be best by the architectural assessor; £200 to the author of the design placed second; £150 to the author of the design placed third; and £100 to the author of the design placed fourth. The Board desire that the buildings should be of the most substantial description, and pleasing in character, but they do not desire that any considerable expense should be incurred on mere ornamentation.

No visitor to Athens but will be glad to know that the date of the erection of the fine little Ionic temple of the Wingless Victory, on the right hand of the entrance to the Acropolis, is now approximately fixed. The date, to be accurate, of its first erection; for it was reconstructed in 1835 out of its ruins by the architect Laurent. Recently, in the excavations on the north-west face of the Acropolis, an inscription has been found mentioning a sanctuary, for which a new door was to be provided, and in which a temple and altar were to be built by Callicrates. That architect, we already know, helped to build the Parthenon. The new temple mentioned can be no other than that of the Wingless Victory. The lettering of the inscription shows that the building must have been begun about the middle of the fifth century; and it is practically certain that, architecturally speaking, it was completed before the Propylæa in 432 B.C. Thus we have the architect and the date of this charming temple. Who carved the splendid reliefs of the balustrade? They seem to be rather later, and it is quite open to us to suppose that they were a subsequent addition.

THE building of the new War Office on the site of Carrington House, opposite the Horse

Guards, is to be commenced immediately. Powers were obtained last Session for acquiring the land and the buildings thereon, and within a week or two the Office of Works will begin to pull down. Among the buildings to be demolished are the old United Service Institution, the offices of the Board of Works itself, and some quaint old buildings in Middle Scotland Yard, now occupied by solicitors and architects. An important departure will probably be taken when the time comes to select a design for the new buildings. The equivocal success obtained by putting the designs up to competition in the case of the Royal Courts of Justice and the new Admiralty buildings has made it probable that the British Institute of Architects will be invited to nominate several names, out of which one will be chosen to make a design in accordance with the requirements of the department.

A SPECIAL commercial section has now been added to the British Fire Prevention Committee, obvious reasons having made it impossible for trade interests to be directly represented on the professional body. The section has been inaugurated, not only with a view of bringing together those commercially interested in the various inventions, systems and appliances which are to have the consideration of the committee, but also with the view of having the assistance and advice of the trade, as to independent fire tests—such as are advocated by Professor Aitchison, R.A., President R.I.B.A. (one of the original members)—and similar important matters. The section will be presided over by an architect or an engineer of standing elected from outside, and he alone will represent the co-operate opinion of the section on the committee; individual preferences will thus be avoided, and the independent position of the section retained. This organisation of the section was the result of protracted consultations between the managers of the leading London firms, and Mr. E. O. Sachs for the executive. Among the firms already represented on the section, the following are primarily interested in questions of materials and constructions:—The Adamant Co. (Birmingham), the Asbestos Co., Bell's Fire-resisting Doors Co., Braby and Co., British Thomson Houston Co., Dawney and Co., Dowson, Taylor, and Co., Edison and Swan Co., Elder and Co. (Glasgow), Ewart and Sons, Expanded Metal Co., Fawcett and Co., General Electric Co., Homan and Rogers, Hydraulic Engineering Co. (Chester), Jones and Co., Lindsay and Co., Owen Stone Co., Potter and Co., Pulham and Son, Pilkington Brothers, Rashleigh, Phipps and Co., Robinson and Co., Strode and Co., Stuarts Granolithic Co., United Kingdom Terra Cotta Co., and Patent Victoria Stone Co.

THE following minute relative to the services of Dr. Rowand Anderson, architect of Edinburgh University New Buildings, including the M'Ewan Hall, prepared by a Committee of Senatus appointed for the purpose, has just been presented to the Senatus:—"On the occasion of their first meeting subsequent to the opening of the M'Ewan Hall, the Senatus Academicus unanimously resolved to place upon record their sense of the value to the University of the services rendered by Dr. Rowand Anderson during a long period of years as architect of the University New Buildings. So far as the structures for academic use are concerned, these buildings may be considered as completed by the M'Ewan Hall, and the occasion thus afforded of looking back over the time elapsed since the first inception of the scheme brings to mind the constant care and thoughtfulness which Dr. Rowand Anderson has shown in providing for the many wants, often of a special kind, of the medical departments. The Senatus recognise, at the same time, the hand of an artist in the architectural treatment of the buildings. While considerations of convenience have not been sacrificed to appearance, the planning of the interior arrangements has resulted in that effective external grouping which has made the New Medical School, as a whole, an acknowledged adornment to a city famous for its architectural monuments. In a building like

the M'Ewan Hall, designed for University ceremonials, Dr. Rowand Anderson had an opportunity of disposing in greater freedom of his means of artistic expression, and the simple dignity of the main effect, both from an exterior and an interior view, together with the taste and reserve shown in the use of carved ornament, represent fittingly this side of academic life. The name of the University will now be connected with one of the conspicuous architectural achievements of the closing years of the century, and the Senatus Academicus recognise that the merits of the design of the Hall entitle the architect to the lasting gratitude of the University."

THE Gloucester Journal states: "We understand that Mr. Robson, the architect, who prepared plans and got out quantities for the abandoned scheme for transforming the Winter Garden into a Kursaal and Municipal Offices, has sent in his account, which amounts to upwards of £3408. We believe it was stated that the preparation of plans did not commit the Council to anything. The ratepayers may perhaps express an adverse opinion if the above figures—which have yet to come before the Town Council—prove to be correct."

BUILDING is now in rapid progress at Greenwich Observatory, and when "Visitation Day" comes round again next June, it is probable that the new edifice, in its completed form, will be open to the inspection of the guests. Last June only the central portion of the new observatory was completed, and there remained to be added the east and west wings now in course of erection. The curious, irregular old buildings which formerly constituted Greenwich Observatory have lost their dignity, and this new structure has assumed the honours of the place, though it has not the distinction of being on the meridian of Greenwich. That, of course, remains where it was, and still runs through the queer old building in which the transit circle is housed. This new edifice, when complete, promises to be strikingly handsome, and with the slopes about its base entirely reformed and re-embellished, will present an appearance somewhat worthy of its world-wide reputation.

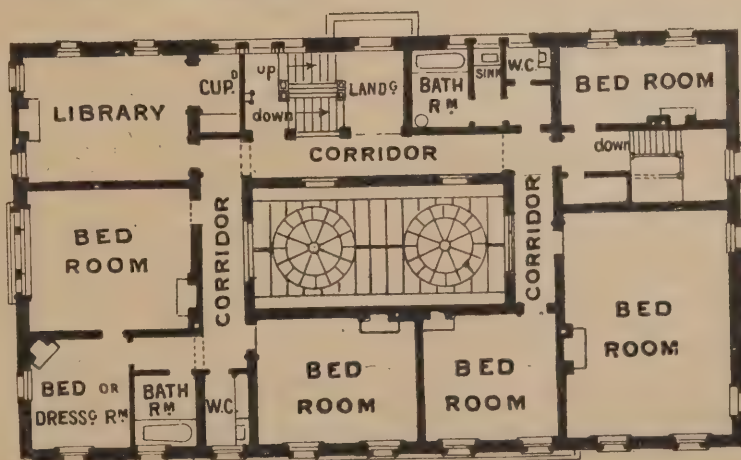
BERKELEY STREET is at last being utilised as a residential portion of Mayfair, and the old stabling is fast disappearing. Ashburnham House is nearly down, and the fine residence, with stone frontage, which is being built next to the Bath Club, is now out of the builder's hands. All the front windows overlook the garden of Devonshire House, and the ground floor is raised some feet above the level of the roadway. The magnificent carved mahogany doors, which were so much admired at Ashburnham House, were bought by the owner, and are now in position in their new quarters.

At a recent meeting of the Metropolitan Railway Company the chairman remarked that an improvement in the ventilation of the railway would benefit both the shareholders and the public. As to the use of electricity, the directors for years past had had the subject on the brain. They thought they were now on the way to secure it, but there were great difficulties in the way. Replying to enquiries, he said the whole question of ventilation had been threshed out by the Departmental Committee. Electricity was the solution of the problem. They would require entirely new stock. There was no difficulty about pulling trains of 200, 250, or 300 tons. The question to be solved was having a sufficient reserve of energy on the circle in the event of two, three, four, or more trains wanting to start at the same time, for them to do so. That was the problem exciting the minds of the electricians.

A GOOD deal of interest has been manifested at Cardiff in connection with the extensive excavations that are now taking place in the well-treed knoll that forms the north-eastern extremity of the castle walls. In time past a good deal of controversy has taken place as to the Roman origin of the castle. Writing in his celebrated work upon mediæval military Architecture in 1884, Mr. George Clark expresses his opinion that the castle is of Roman origin, but says that his "opinion is but moderately supported by scanty discoveries of Roman remains." He says "The position of Cardiff Castle, having a river front and rear, and the sea close upon the southern flank, is such as would be selected by a commander skilled in the art of war and enclosed in an enemy's country, and such as with disciplined troops would be impregnable. These conditions, the name of the place and its position upon the well-known *via maritima*, are suggestive of a Roman origin, an opinion indeed but moderately supported by scanty discoveries of Roman remains, but in unison with the form and character of a part of the earthworks which enters into the composition of the present castle. There appears to have been a single lofty bank raised from an exterior ditch, and enclosing much of three sides of a quadrangular space, a practice by no means unusual in Roman or 'quasi' Roman encampments. The banks are about 30ft. high, 90ft. broad at the base, and 12ft. at the summit, along which runs a light embattled wall about 6ft. high and 2ft. thick. At the south-east, north-east, and north-west angles the banks are strengthened, possibly to carry towers, of which, however, no foundations have been discovered."

THE recent discoveries have done much to prove the correctness of Mr. Clark's theory concerning the origin of the castle as a whole, and the supposition that at the north-eastern extremity a tower once existed. An examina-

FIRST FLOOR PLAN



DESIGN FOR A VILLA. THE TITE PRIZE DRAWINGS. BY JOHN S. LEE.

Reproduced from a tracing.

tion of the excavation, as at present made, shows that at the left-hand side of the mass of masonry now laid bare may be seen portions of the old ashlar facing of the tower. The mass of rubble behind this clearly displays the method of building resorted to by the Romans in erecting walls of great thickness and strength. It was their custom to set layers of stone as facings on the outer and inner sides of the wall, and then in the wide space intervening to heap in rubble, the spaces between the large stones put in being filled by pouring in a species of mortar or cement. There can be small if any doubt that it was originally a Roman camp with rude stone walls to the north, east, and south. Then came the Saxon invaders. It was their custom to build mounds, and doubtless the high mound that was thrown up both inside and out over the top of the old Roman wall was their handiwork. On the top of this they probably erected wooden barriers. In the midst of the protected space they threw up another huge mound called a "burh" or "tump," and on this mound was the residence of the thegn.

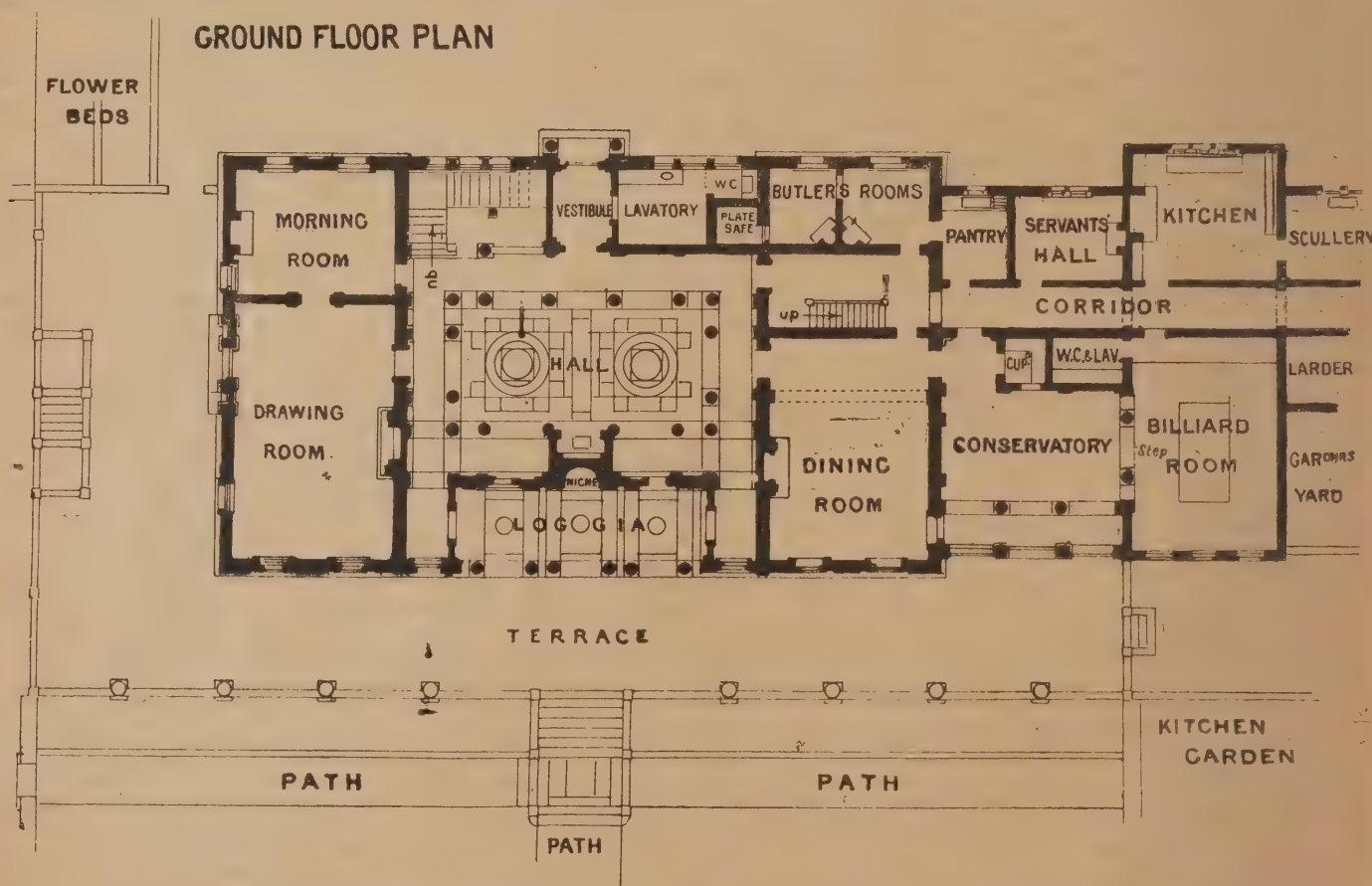
Energy," a naked figure, in the early glory of manhood, reigning in and controlling a fiery steed of classical type, while he—this ideal personification of "Beneficent Force"—looks steadfastly and fearlessly ahead, shading his eyes with one hand from the sun, and seeking—as we are told in a description obtained, no doubt, from the sculptor himself—for "new labours and fresh conquests." Horse and rider, as a group, are manifestly inspired by those incomparable figures of young horsemen riding in the Panathenaic Procession, as we see them in the Parthenon frieze at the British Museum. The conception is none the less Mr. Watts's own, since he has known how to infuse into it his own lofty personality, his own human sympathy and modernity of feeling, giving new life to formulas of art consecrated by the past.

At present the gigantic equestrian group, like many of this artist's loftiest conceptions on canvas, is an aspiring and noble effect rather than a complete work of art in which all technical difficulties have been overcome. If only Mr. Watts's hand could have expressed to

only in material, but in outline, and mass. In France it is the rule that, when a monument or statue of importance is to be set up in the open air, the collaboration of an architect with the sculptor is secured. If this rule had been more generally followed over here, we might have been spared many monstrosities which now disfigure the open places of London.

MR. F. J. HORNIMAN, M.P., is erecting a new museum in the place of the old "Horniman Free Museum" at Forest Hill. The treasures in the present museum will be placed in the new one, together with others, and there are to be pleasure grounds, recreation hall, and other buildings. It is hoped that the new Free Horniman Museum will be opened to the public in the summer of 1899.

It is reported that Government Japanese engineers are preparing plans for the construction of a bridge across the Straits of Shimonoseki, so as to unite the main line of the Kin Sun railway with that of the Sanyo line from Shimonoseki to Hiogo. The straits



AT THE R.I.B.A. DESIGN FOR A VILLA. THE TITE PRIZE DRAWINGS. BY JOHN S. LEE.

Reproduced from a tracing.

But then came the day when the Norman landed. He crowned the tump with a keep, which to-day, in ivy-clad old age, tells us by its architectural style that it was of Norman construction. The Normans must have pulled down the old wooden barriers that the Saxon had placed along the top of the earthworks which covered the original walls, for they supplanted them by a slight stone wall with a foundation only 2ft. in depth into the top of the mound.

COMPLETING his important gifts of paintings to the National Portrait Gallery and the National Gallery of British Art, Mr. G. F. Watts has presented to the nation his colossal equestrian statue, "Energy," or "Force," upon the model of which he has been working for many years past. This constitutes, with the equestrian statue, "Hugh Lupus," done for the Duke of Westminster, and now in the grounds of Eaton Hall, the veteran master's most important contribution to the art of sculpture. The statue represents "Physical

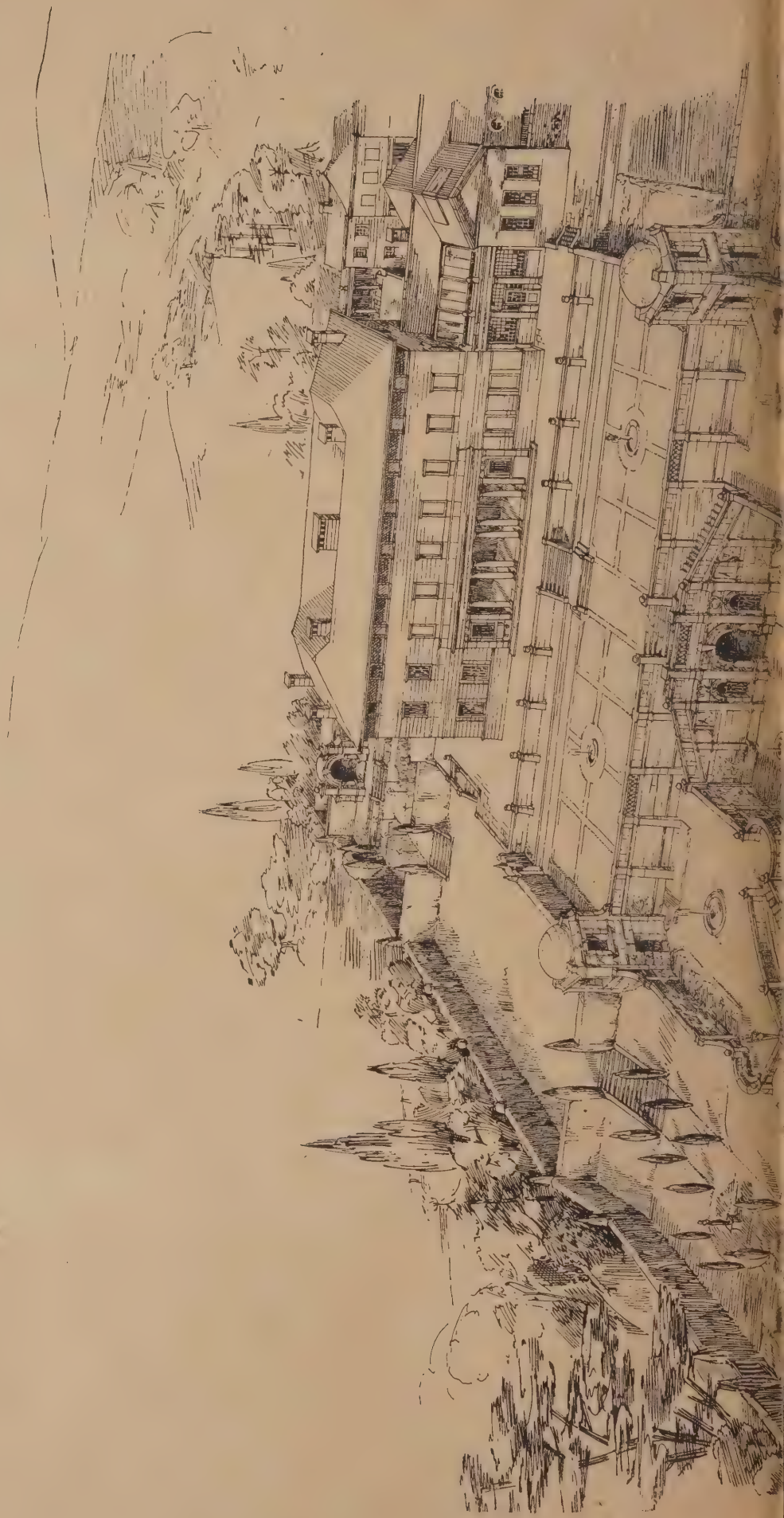
the utmost all that his brain and heart had conceived, we should have had in him the greatest master of this century. No doubt, however, many of the roughnesses and peculiarities of modelling which disturb the eye in the model will be removed before "Physical Energy" is cast. Much, too, can be done towards securing technical perfection by carefully retouching the group after it has been cast. The site chosen to display it is a magnificent one, in the centre of the terrace at the foot of the Serpentine. So magnificent is it, indeed, that it behoves the master and his assistants to see that the work, as realised once for all in imperishable bronze, lacks no pains that might impart to it a higher technical perfection, that might give added finish and beauty of form to a conception so worthy already of the loftiest and truest idealism among our British artists of to-day. Much will depend, too, upon the design and proportions of the pedestal upon which "Physical Energy" is to be placed. This should be simplicity itself, and yet fine, not

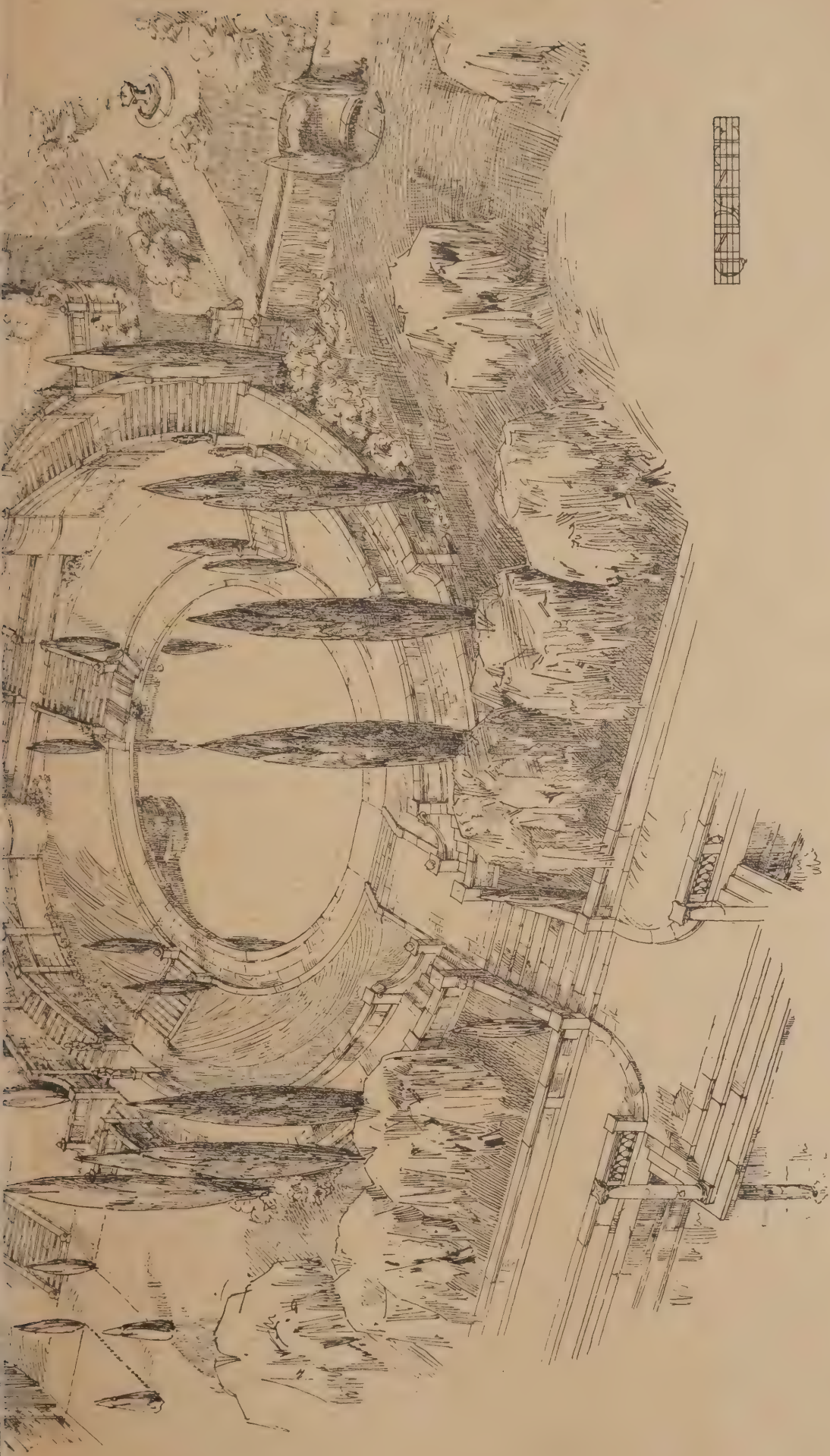
at the point referred to, are about one mile in width, and the current through them is very rapid. The bridge must be constructed sufficiently high to enable the largest ocean steamers to pass beneath. It is said that the undertaking, if carried out, will be one of the greatest engineering feats of its kind in the world. It is intended that the work of construction will be undertaken and superintended by Japanese engineers exclusively.

THE Finedon Memorial Tower is perhaps one of the quaintest dwelling houses yet devised. The tower was built a number of years ago in memory of the son of the Squire of Finedon. Curiously enough, the tower was built without mortar, the stones being laid in such a way that one stone binds another. But it was not considered safe, and to prevent the collapse of the tower buildings at the foot were added the whole now being used as a place of residence. Finedon Tower is believed to be the only memorial tower in the United Kingdom that is used as a dwelling house.

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DESIGN FOR A VILLA AND GARDEN
IN ENGLAND IN THE
ITALIAN MANNER.





AT THE ROYAL INSTITUTE OF BRITISH ARCHITECTS. THE TITE PRIZE DESIGN. BY JOHN STEVENS LEE.

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Surveying & Sanitary SUPPLEMENT.

FEBRUARY 9TH, 1898.

A NEW METHOD OF SHORING BUILDINGS.*

BY CHAS. GEOGHEGAN.

IN the year 1859 the directors of the Royal Bank, Dublin, invited four architects to compete for comprehensive alterations to their premises in Foster Place, giving the competitors full permission to utilise any portion of the buildings then in their possession, extending from Foster Place to the rear of the houses on the east side of Anglesea Street, in order to secure the most commodious cash office possible; but without interruption to the bank officials or to the occupants of the two upper floors and basement of that portion of the premises situate in immediate connection with the old cash office.

When informed that the directors were disposed to adopt my plan as being most suitable to their requirements, I learned that this conclusion had been come to with the expression of their opinion that it would not be possible to demolish all the portions of the old work, as shown by my plans, and shore up the superstructure without causing the destruction of the entire front premises, and their fears had been confirmed on submitting the project to the inspection of an architect of high position and great experience.

To this communication I replied that I was willing to undertake the work, with all its risk, and felt perfectly confident that all difficulty would be overcome, and that by the use of iron frames in place of timber needles and supports the work could be carried out with much greater safety and less expense. But the great difficulty of finding an enterprising, practical firm disposed to embark in so novel a project almost deterred me from proceeding in the matter. But having laid all the details of the proposed scheme before Mr. W. Anderson, who was then acting as engineer to the firm of Messrs. Courtney, Stephens and Co., I received from him every encouragement, and he kindly volunteered to undertake the entire preparation of all details connected with the shoring and placing the beams *in situ*—a work which required more than ordinary ingenuity and skill to complete, and one which I would have feared to incur had I not been so fortunate as to have had his sound professional advice and experience to reassure me. You will no doubt be glad to hear that my former Mentor is now better known in London as Dr. William Anderson, C.B., D.C.L., Director General of Ordnance Factories. He will be pleased to learn that his name is not forgotten in Dublin, where he first had many opportunities of exhibiting his great intellectual powers.

Exclusive of the danger and unsightliness of settlements, almost sure to result if it were attempted to support masses so rigid and friable as brick walls on elastic pillars of wood, 40ft. high, there was the objection that to get the shores put up the whole of the ground and first floors would have to be removed, and the walls thereby deprived of valuable lateral

support, when they were likely to be unduly strained by unavoidably unequal shoring. The expense also of providing suitable foundations for the shores, increased by the difficulty of getting such long and heavy timber into its place would have been very great. As three of the main beams (A, C, D, Fig. 1) were to be

the shoring frames. Exclusive of bolts, the frame is composed of four pieces—viz., the top and bottom, which act the part of short beams, and the two sides intended to carry the load as pillars. These may be of variable dimensions to suit the depth of beam and thickness of walls or load



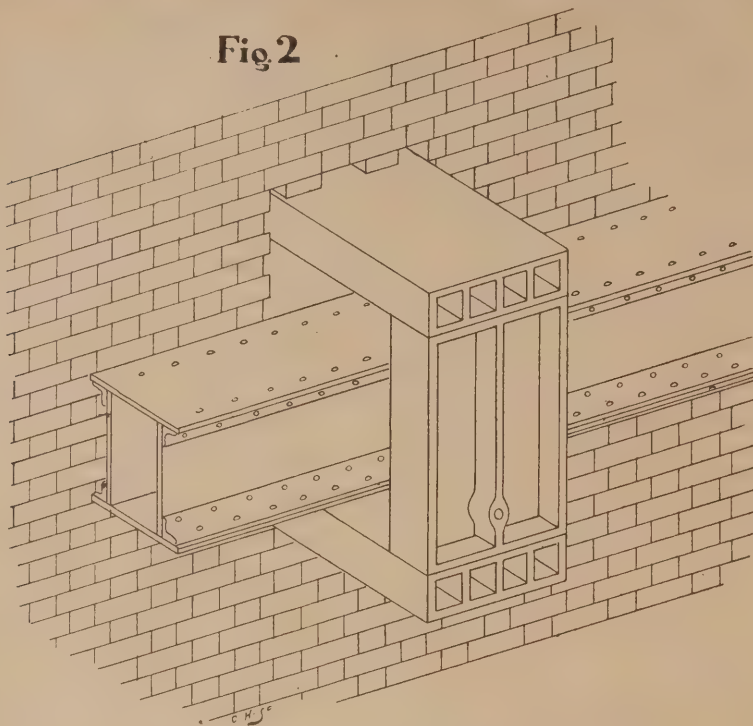
"A NEW METHOD OF SHORING BUILDINGS."

in the same level, rigidly connected by means of bolts and nuts, it was very desirable for facility of manipulation to have them all loose in the walls at the same time. Had the system of timber shores been adopted, to attempt this would have been very hazardous, if not impossible, as the multitude of supports would have rendered the lifting and placing of the beams very intricate. To overcome these objections, I proposed to make the lower portions of the walls serve as temporary pillars to support the upper parts, by interposing frames of iron or wood, through which the beams could be passed, and accordingly explained my views to the engineer, and entrusted him with the construction of

to be supported. They are fitted together to make a truly rectangular frame, and held in position by means of bolts. The top and bottom are made cellular, with the outer walls thinner than the inner ones, in order to approximate, as much as possible, to the form of greatest strength. The vertical pieces are composed of plates, stiffened by deep ribs, to obtain rigidity with lightness, and are provided with holes near the bottom, through which a rod may be passed to carry a metal roller for the beam to run on when being pushed into its place. As the frames had to be put up in inconvenient places, it was a great object to keep the several parts as light as possible, in order that three or four men

* A paper, entitled "Method of Shoring by means of iron frames, adopted when building the New Royal Bank, Foster Place, Dublin," read before the Architectural Association of Ireland.

Fig 2



"A NEW METHOD OF SHORING BUILDINGS."

might move them with ease, without having recourse to tackle. There are two principal conditions under which beams may require to be placed under walls:

First—There may be room enough to admit the beam being launched into its place end on.

Second—The wall may be so situated that the beam can only be put in sideways, or there may be a combination of the two cases, where there may be room to launch the beam half way, provided the previous half can be got in sideways. The one case requires a different form of frame from the other, as will now be explained. Beam D (Fig. 1), supporting two heavy chimney stacks, is an illustration of the first case. There being plenty of room in the courtyard to lift the beam to its proper level, clear of all the houses, the following preparations were made:—Two holes were broken through each of the two chimney-stacks, and a good bed having been formed in each at the proper level, four frames were placed in them, and one smaller one was similarly introduced into the intermediate walls. When all the frames had been carefully arranged in line, folding wedges of good dry oak were driven between the tops of the frame and the superincumbent walls, till the weight of the latter was made to rest entirely upon the frames. The portion of the wall and chimney-stacks between the frames was then removed, and the beam, having been hoisted on tall shearlegs in the courtyard to the proper level, was launched safely into its place through the frames.

Beam A (Fig. 1), supporting the back wall, affords an example of the second case. The quoin of the adjoining house would not allow the beam to be hoisted sufficiently far back to pass it through frames similar to those used with beam D, it was therefore hoisted diagonally alongside the wall till its end entered a doorway in the bow projection, which allowed it to go far enough forward to clear the quoin, when raised to a level and placed at the proper height parallel to its permanent position, and in which it was temporarily secured. Two frames (Fig. 2) made to project their own width on one side of the wall, were inserted into holes which had previously been cut in the brickwork, and bolted together so as to include the beam within themselves. The weight of the walls was transferred to the frames, and the masonry between them cut away as before, and the beam moved in—first sideways till fairly under the wall, and then launched forward through two more frames into its permanent position.

Beam C (Fig. 1) was got into the house with great difficulty on account of its length, and was laid on the ground floor alongside the wall it was intended to support, and raised thence to its proper height, where it was temporarily held, while four frames were put round it, and secured in the walls as already described. The intermediate masonry having been cut away, the beam was moved sideways into its place under the wall. At this stage of the proceedings, the three main walls, being completely cut through, were supported only on thirteen frames, in which the beams were lying loose; the latter were carefully fitted to each other and firmly secured by means of bolts and rivets, after which the whole mass of wrought iron—weighing $13\frac{1}{2}$ tons—was adjusted to its exact position vertically and horizontally. Chases were now cut in the lower walls to admit the columns, which, having been erected, the weight of the walls on the frames was transferred to the beams by driving folding wedges between the top pieces of the former, and the upper flange of the latter, to cause the beams to deflect to their full extent previous to underpinning between the frames in brick and cement. When all was ready, the wedges over the frames were cautiously slackened, and the entire weight of the building allowed to come upon the beams and columns. The frames were retained in position for a few days, during which time the behaviour of the columns and foundations was carefully watched; and, as no signs of yielding was detected, the frames were released, the bolts connecting their several parts were withdrawn, they themselves removed in pieces, and the gaps occupied by their upper portions made good in brick and cement. The actual cost of successfully shoring up the eight walls in the manner described was £62. The builders' estimates for the same operation, without any allowance for the great risk run, was from £168 to £180—being a saving of at least £106—in favour of frame system, not counting the gain in time, security, and convenience. The urgent necessity of completing the work as quickly as possible induced the builder to use more frames than were absolutely necessary. Had there been no occasion to shore so many walls simultaneously, the work could have been done for £42, or one fourth the lowest estimate quoted above.

The entire weight of walls, flooring, roofs, &c., amounted to 200 tons, which had to be sustained on No. 13 iron-framed girders, all bedded on the same level—28ft. above the ground floor of the old and present bank in

Foster Place—the longest girder being $4\frac{1}{2}$ tons in weight and 40ft. in length, to which the shorter girders were secured by bolts with nuts and screws.

The larger metal frames cost £3 10s., and the smaller ones £2 10s. each.

In works of less magnitude than those now referred to, the system can be carried out in timber with economy and safety, and I was informed by the late Mr. Michael Meade that he had found it on several occasions the means of saving time and expense with perfect security.

The columns, which were of the unusual length of 26ft., and only 12in. diameter, required extreme care, especially as regarded the precautions adopted to ensure a uniform thickness of metal. The whole of the iron-work had been designed by the engineer, and executed by Messrs. Courtney, Stephens and Co., of Dublin, and tested by them, and great praise was given to Messrs. Crowe and Sons, the contractors, for the work, to whose zeal the success of the operations was in a great measure due.

Surveying and Sanitary Notes.

THE Burgh Commissioners of Bo'ness have accepted the offer of Mr. Thomas Peattie, contractor, to construct a large new reservoir on the estate of Lochcote, situated between Linlithgow and Bathgate. The contract amounts to £11,500. The reservoir will cover about 45 acres of ground, and hold two hundred million gallons of water. Altogether the new works will cost nearly £25,000.

THE Main Drainage Committee of the London County Council reports that during the year ended December 31 last, 46,494 and 33,373 million gallons of crude sewage were treated at the Barking and Crossness outfall works respectively, together making a total quantity of 79,867 million gallons, or an average of nearly 219 million gallons per day. During the same period 1,408,000 and 697,000 tons of sludge were sent to sea from the respective stations.

At a special meeting of the Douglas Town Council the report of Messrs. Stevenson and Burstall, engineers, the authors of the improved scheme of drainage for Douglas adopted by the Council, was considered. Mr. Stevenson explained the causes that had resulted in his original estimate of £29,000 having been increased to over £49,000, and reported upon other matters connected with the scheme. The Highways Committee recommended that Tynwald Court be applied to for further borrowing powers of £20,000, in addition to the £35,000 already sanctioned in connection with the scheme. The recommendation was carried.

MR. EDWARD COUSINS, civil engineer, London, has presented his report to the Penybont Main Joint Sewerage Board, sitting at Bridgend, for dealing with the sewage of the district. He decided against an open outfall or sewage into the sea at low water mark, and submitted two estimates for the board to consider. These were—(1) For the sea outfall, the sewers having self-cleansing gradients and a brick tank sewer for containing the sewage at times when the outfall sewer is tidal locked, including penstock, tidal valves, etc., £13,642; (2) for the septic tank scheme, with filter beds on the sand banks and effluent drains into the river, capable of dealing with a population of 20,000—£18,799. The estimates did not include the purchase of any land for the tanks and filters, nor for any easement along any part of the pipe line where it passed through private property. It was unanimously decided not to take the storm water from the Bridgend and Penybont areas into the scheme, as that would cost an additional £7000.

LONDON has 3000 miles of sewers, 34,000 miles of telegraph wires, 3200 miles of gas-pipes, and 4500 miles of water mains.

THE new breakwater now being constructed by the United States Government, at Buffalo, New York, under the superintendence of Major Symonds, of the Engineer Corps, will, when finished, be the largest of its kind in the world. The first breakwater was begun in 1868; extended operations were arranged for in 1874, and only completed four years ago. The breakwater approaching completion will be 12,500ft. long, making a total length of 20,100ft. from the lighthouse to Strong Point. Next in dimensions is the famous Cherbourg breakwater, which is 12,200ft. long, and took 70 years to build.

A LOCAL GOVERNMENT BOARD INQUIRY has been held at Manchester, into the application of the Council to borrow a sum of £170,000 for purposes of sewerage and sewage disposal. The items specially referred to were £1600 for Cornbrook sewer, £5511 for Audenshaw intercepting sewer, £49,800 for reversing and connecting the old sewers with the new intercepting sewers, £9270 for improvements for flood prevention, £5000 for automatic flushing chambers for cleansing sewers, £13,050 for works at Davyhulme for intercepting the solids and adding chemicals and screening the sewage, £2500 for additional tramways and private roads at outfall works, £850 for chemical shed and steam crane, making with

contingencies and other smaller items a total of £102,370. The inspector said, with some emphasis, that the Local Government Board would not sanction a loan for artificial filter-beds unless a sufficient area of land was provided for passing the sewage over after it had been purified by the artificial filters.

As we cannot all choose our houses according to the subsoil on which they may be built, it is comforting to have in the latest of the "Memoirs of the Geological Survey" an assurance that a good deal of misapprehension exists with regard to the advantages of gravel as a subsoil and of the disadvantages of clay. In certain circumstances, we are told, either may be good, or both may be bad as sites for houses. The object of the new memoir entitled "Soils and Subsoils from a Sanitary Point of View, with especial reference to London and its neighbourhood," is to supply such information as may be needed by those who are compelled to be careful in the choice of their place of residence. Househunters are advised that they would do well to consider the general sanitary conditions connected with proposed sites, and to bear in mind that a healthy habitation depends on several considerations, apart from the nature of the subsoil. There are the elevation of the ground and other local circumstances, and more important still the construction of the house itself, its damp-proof basement, its airy and sunny position, and the system of drainage. Lastly, the water supply is of vital importance.

THE Health Committee of the Halifax Corporation have decided to meet the joint requirements of Halifax and the out districts in the matter of a smallpox hospital. The estimated cost, inclusive of site, is £16,000. The site is near the racecourse.

SIR JOHN HUTTON (the president), delivering a recent address to the members of the Sanitary Inspectors' Association, at Carpenters' Hall, London Wall, said it had long been the wish of those interested in the Association to form a fund from which members could be encouraged in their studies and researches in the interest of the public health. A liberal and practical proposal had now been made by one of their members to found a Chadwick and Richardson memorial fund. This offer was a contribution of 50 guineas, provided that, within nine months, the fund were raised to 500 guineas. The competitions for prizes would be held yearly in such form as might be deemed best, either by having special competitions, or for the best papers read at London or any other of the branch meetings. To promote longevity was an aim and result of the work of the sanitary inspector. In 1660 the rate of mortality in London was 80 per 1000 per annum, but the death-rate in the county of London in 1896 was only 18.9. Many contributory causes must have operated in producing this result, not the least of which he claimed, in recent years, to be the zealous labour of the sanitary inspector.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Feb. 12	Warkworth, Alnwick—Improving Bridge ...	Alnwick Rural District Council ...	H. W. Walton, Clerk, Council Offices, Alnwick.
" 12	Aberdare—Erection of Theatre ...	Lyric Company Limited ...	T. Roderick, Architect, Ashbrook House, Clifton-st. Aberdare
" 12	Dalston, near Carlisle—Erection of Brick Wall ...	Carlisle Rural District Council ...	J. Bell, 1, Aglionby-street, Carlisle.
" 12	Ebbw Vale, Mon.—Erection of Surgery ...	Committee of Workmen's Doctor's Fund ...	T. Evans, Secretary, Estate Office, Ebbw Vale Works.
" 12	Halifax—Additions to Mills ...	.....	C. F. L. Horsfall & Son, Architects, Lord-st.-chas., Halifax.
" 12	Halifax—Erection of Two Houses ...	.....	C. F. L. Horsfall & Son, Architects, Lord-st.-chas., Halifax.
" 12	Penygraig, Wales—Chapel Renovations ...	.....	T. D. Evans, Architect, Hendrecafau-road, Penygraig.
" 12	Wibsey, Yorks.—Erection of Six Houses ...	.....	J. Cowgill, Architect, Albany-buildings, Bradford.
" 12	Wrexham—Erection of Three Houses ...	.....	T. Breese, 24, Express-road, Wrexham.
" 14	Hastings—Boundary Walls, Clarification Works ...	Corporation ...	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
" 14	Rowley Regis—Water Closets, Alterations to School, &c. ...	School Board ...	J. T. Meredith, Architect, Kidderminster.
" 14	Uckfield, Sussex—Erection of Casual Wards, &c. ...	Guardians ...	F. Holman, Clerk, Workhouse, Lewes.
" 14	Aberdeen—Additions, &c., to Farm ...	Corporation of Royal Infirmary ...	G. Taylor, Clerk of Works at Asylum, Aberdeen.
" 14	Barnsley—Reconstruction of Theatre ...	Theatre Royal Co. ...	H. Crawshaw, 13, Regent-street, Barnsley.
" 14	Boston Spa—Alteration of Shop Premises, &c. ...	.....	T. A. Buttery & S. B. Birds, Architects, Queen-st., Morley.
" 14	Buckley, Chester—Extension of Schools ...	.....	J. H. Davies and Sons, 24, Newgate-street, Chester.
" 14	Doneska, Ireland—Erection of Church ...	The Very Rev. M. Ryan, P.P. ...	W. G. Doolin, Architect, Dawson-chambers, Dublin.
" 14	Halifax—Erection of Warehouse, &c. ...	.....	J. F. Walsh, Architect, Lancs. & Yorks. Bank-chas., Halifax.
" 14	Hastings—Supply, &c., of Covered Seats ...	Corporation ...	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
" 14	Morley—Retaining Wall and Culvert ...	.....	M. H. Sykes, Borough Surveyor, Town Hall, Morley.
" 14	Bawtry—Cloakroom, &c., at School ...	Mission School Trustees ...	Rev. F. W. Keene, Mission Vicarage, Bawtry.
" 14	Portsmouth—Mortuary, &c. ...	Urban District Council ...	T. J. M. Flower, Carlton-chambers, Baldwin-street, Bristol.
" 15	Cowling, Yorks.—Erection of Warehouse ...	J. Binns and Sons Limited ...	J. Hartley, Architect, Exchange-buildings, Skipton.
" 15	Fawley, Hants.—Erection of School, &c. ...	School Board ...	Mitchell, Son, & Gutteridge, 9, Portland-st., Southampton.
" 15	Blackburn—Erection of Pauper Houses, &c. ...	Guardians ...	Stones and Gradwell, Architects, Richmond-ter., Blackburn.
" 15	Devizes—Story to Hospital ...	.....	C. S. Ayle, County Surveyor of Wilts, Trowbridge.
" 15	Dover—Erection of Cart-shed ...	Town Council ...	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 15	Halifax—Erection of Tool Works, &c. ...	.....	T. L. Patchett, Architect, George-street-chambers, Halifax.
" 15	Herne Bay—Additions to Schools ...	School Board ...	E. Collard, Architect, East-street, Herne Bay.
" 16	Redbridge, near Southampton—Factory Buildings, &c. ...	Schulze Gunpowder Company ...	Lemon & Blizard, Lansdowne House, Castle-la., Southampton.
" 16	Stoke-upon-Trent—Vagrant Wards, &c. ...	Union Guardians ...	C. Lynam, Architect, Stoke-upon-Trent.
" 16	Nottingham, W.—New Church Vestries ...	All Saints Church ...	Boreham and Morton, Quantity Surveyors, Sunderland.
" 16	Rochester—Erection of Mortuary ...	Corporation ...	City Surveyor, Guildhall, Rochester.
" 16	Southsea—Alterations, &c., to Offices ...	Guardians of Portsea Island Union ...	Rake and Cogswell, Prudential-buildings, Portsmouth.
" 16	Gravesend—Erection of Market, Fire Engine Station, &c. ...	Town Council ...	E. J. Bennett, 24, Darnley-road, Gravesend.
" 17	Aberdeen—Erection of Warehouse ...	Northern Co-operative Co. Ltd. ...	R. G. Wilson, 181A, Union-street, Aberdeen.
" 18	Bristol—Erection of Superstructure of Granary ...	Docks Committee ...	Engineer's Office, Cumberland Basin, Bristol.
" 18	Printon, Essex—Erection of School ...	School Board ...	S. T. James, Architect, Frinton-on-Sea.
" 19	Uppermill—Masonry Works to Bridge ...	West Riding County Council ...	—Rowbotham, Clerk to Urban District Council, Uppermill.
" 19	Findhorn—Erection of Villa ...	.....	J. Forrest, 129, High-street, Forres.
" 19	Halifax—Erection of Dwelling-house ...	.....	C. F. L. Horsfall and Sons, Lord-street-chambers, Halifax.
" 19	Settle—Alterations, &c., to School ...	.....	H. Ross, Architect, Cannon-street, Accrington.
" 21	Leeds—Erection of Four Shops ...	School Board ...	Town Clerk, Town Hall, Leeds.
" 21	Neath, Wales—Erection of Schools ...	School Board ...	J. C. Rees, Architect, St. Thomas's-chambers, Neath.
" 21	Bath—Enlargement of Schools ...	.....	W. J. Wilcox, 1, Belmont, Bath.
" 21	Plymouth—Erection of Refuse Destructor ...	Committee ...	J. Paton, Borough Engineer, Plymouth.
" 22	St. Ives, Cornwall—Chapel and Schoolroom ...	.....	W. Faulk, Fore-street, St. Ives, Cornwall.
" 24	Paulton—Erection of Schools ...	.....	W. F. Bird, C.E., Architect, Midsomer, Norton.
" 28	Lyme Regis, Dorset—Erection of Five Almshouses, &c. ...	Corporation ...	M. C. Preston, Town Clerk, Lyme Regis.
Mar. 1	Llanrwst—Alterations, &c., to Court House ...	Denbighshire Standing Joint Committee ...	R. L. Williams, 5, Castle-street, Ruthin, Denbigh.
" 14	Llangarthen, Wales—Stone Bridge over River Towy ...	Cardmarthen County Council ...	T. Jones, Clerk, County Council Offices, Llandoverly.
" 14	Dartford—Additional Buildings, &c. ...	Union Guardians ...	G. H. Tait, Architect, Lowfield-street, Dartford.
" 19	Hereford—Cleaning-down Shire Hall, &c. ...	Standing Joint Committee ...	County Surveyor, Shire Hall, Hereford.
No date.	Abertillery—Erection of 134 Houses ...	.....	C. T. Evans, 8, Queen-street, Cardiff.
"	Bangor, Ireland—Erection of Church ...	J. G. Black ...	W. J. W. Roome, Whitehall-buildings, Ann-street, Belfast.
"	Burley-in-Wharfedale—Erection of Ten Houses ...	.....	Whitehead and Smethaw, Albert-street, Harrogate.
"	Buxton—Erection of Twelve Cottages ...	.....	Buxton Lime Firms Co., 8, Quadrant, Buxton.
"	Chingford—Block of Shops ...	Co-operative Creamery ...	J. E. Still, 82, Queen-street, Cheapside.
"	Clones, Ireland—Erection of Creamery ...	.....	G. F. Graham, President, Co-operative Creamery, Clones.
"	Dartford, near Barnsley—Four Houses ...	.....	J. Robertson, Wombwell.
"	Kurton, near Chorley, Lancs.—Farm Buildings ...	Colliery Owners ...	Jolly and Buckley, Architects, High-street, Chorley.
"	Garforth Colliery, near Leeds—Eight Cottages ...	.....	R. Routledge, Manager, Garforth Colliery.
"	Harrogate—Converting Shops to Bathrooms, &c. ...	.....	W. Bennett, Gen. Superintendent, Royal Baths, Harrogate.
"	Haslingden—Erection of Workmen's Club ...	.....	Secretary, Station-road, Haslingden.
"	Llanelli—Erection of Three Villas, &c. ...	.....	W. Griffiths, Architect, Falcon-chambers, Llanelli.
"	London, S.W.—Plastering Twenty-four Flats ...	.....	Stephens, Baston and Co., Montpelier, Bristol.
"	Nelson, Lancs.—Concreting, &c., Seven Houses ...	.....	W. Whittaker, 153A, Accrington-road, Burnley.
"	Ramsgate—Erection of School Wing, &c. ...	.....	J. Emes, 151, Ebury-street, Eaton-square, London, S.W.
"	Stockton—Erection of Palace of Varieties, &c. ...	.....	W. Duncan, 35, Albert-road, Middlesbrough.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
ENGINEERING—			
Feb. 14	Leeds—Laundry Machinery	Union Guardians	T. Winn, 90, Albion-street, Leeds.
" 14	Clitheroe, Lancs.—Water Main	Corporation	J. E. Sharpe, Borough Engineer, Clitheroe.
" 14	Glasgow—Construction of Timber Wharfing, &c.	Trustees of Clyde Navigation	Clyde Navigation Chambers, 16, Robertson-street, Glasgow.
" 14	London, E.C.—Supply of Bridge Work	Bengal-Nagpur Railway Company Ltd.	Company's Office, 132, Gresham-house, Old Broad-st., E.C.
" 14	Millom—Timber Piling, &c.	Millom & Askam Hematite Iron Co. Ltd.	Company's Office, Millom, Cumberland.
" 14	Redditch—Electric Lighting Works. (Eight Contracts.)	Urban District Council	J. A. McMullen, Engineer, Hornchurch, Essex.
" 15	Devizes—Supply of Two Boilers	Asylum Visiting Committee	Massey and Allpress, 25, Queen Anne's-gate, Westminster.
" 15	Sheerness—Designs and Tenders for Iron Pier	Urban District Council	C. A. Copland, Council's Surveyor, Trinity-road, Sheerness.
" 15	Widnesbury—Widening Bridge. (Two Contracts.)	Corporation	E. M. Scott, Borough Engineer, Town Hall, Widnesbury.
" 16	Middleton—Supply, &c., of Purifiers	Corporation	T. Duxbury, Gas Engineer, Gasworks, Middleton.
" 17	Birmingham—Construction of Well, &c. (3 Contracts.)	Baths and Parks Committee	Engineer of Baths and Parks Dept., Kent-st., Birmingham.
" 19	Rochdale—Dynamo, Ballancer, and Boosters, &c.	Corporation	Lacey, Clirehugh, and Sillar, 10, Delahay-st., Westminster.
" 19	Portland—Waterworks	Urban District Council	E. J. Elford, Engineer, Council Offices, New-rd., Portland.
" 19	Uppermill—Rebuilding Bridge	West Riding County Council	J. V. Edwards, County Surveyor, Wakefield.
" 21	Bridgnorth—Pipe Laying, &c.	Corporation	J. Taylor, Sons, & Santo Crimp, 27, Gt. George-st., Westminster.
" 22	Plymouth—Construction of Dock Entrance, &c.	Great Western Railway Company	Engineer, G. W. R. Station, Plymouth.
" 23	Martley, near Worcester—Water Supply Works	Rural District Council	A. W. Knott, Clerk, 14, Foregate-street, Worcester.
" 26	Denbigh—Provision of Cooking Apparatus, &c.	Asylum Guardians	C. O. Ellison and Son, Sir Thomas-street, Liverpool.
March 2	Middlesbrough—Extension of Dock	North-Eastern Railway Company	Sir J. W. Barry, 21, Delahay-street, Westminster.
" 2	Pallion, near Sunderland—Construction of Bridge, &c.	North-Eastern Railway Company	C. A. Harrison, Central Station, Newcastle-on-Tyne.
" 12	Dorstone, Hereford—Carriage Bridge	County Council	H. T. Wakelam, County Surveyor, Shire Hall, Hereford.
" 17	Sophia, Bulgaria—Electric Lighting Town	Secretary of State for War	The Mayor, Sophia, Bulgaria.
April 27	London, S.W.—Electric Search Light Apparatus	Hygienic Commission	A. Major, Director of Army Contracts, War Office, Pall Mall.
July 31	Tangier—Water Supply	Corporation	Commercial Department, Foreign Office, London, S.W.
No date.	Margate—Sinking Borehole	Northampton Rural District Council	A. Latham, 15, Cecil-square, Margate.
"	Kislingbury—Reservoir	Parish Council	W. Hall, 12, St. Giles-street, Northampton.
"	Whittlesea—Kilns, Machine Sheds, &c.	Parish Council	F. H. Cooke, Surveyor, Peterborough.
"	Weedon—Laying Out Grounds, &c.	Parish Council	J. B. Williams, Surveyor, Moot Hall, Daventry.
IRON AND STEEL—			
Feb. 12	Blackburn—Supply of Street Picks, &c. (21 Contracts)	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
" 12	Ilkley—Supply of Cast-iron Socket Pipes	Urban District Council	W. B. Woodhead, 18, Exchange, Bradford.
" 12	Belfast—Various Stores	Belfast and County Down Rly. Co.	T. J. Brittain, Secretary, Queen's Quay Terminus, Belfast.
" 14	London, E.C.—Supply of Iron Piping, &c.	Burma Railways Co. Ltd.	Company's Office, 76, Gresham House, Old Broad-st., E.C.
" 15	Croydon—Cast Iron Pipes	County Borough	Borough Engineer, Town Hall, Croydon.
" 16	Birkenhead—Supply of Stores and Materials	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 21	London, S.W.—Supply of Steel Rails and Fishplates	Corporation	Agent-General for Victoria, 15, Victoria-street, S.W.
PAINTING AND PLUMBING—			
Feb. 14	Blackburn—Painting, &c., at Hospital	Health Committee	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
" 14	Prestwich, Lancs.—Painting Asylum	Committee of Visitors	Superintendent, County Asylum, Prestwich.
No date.	Nottingham—Chapel Cleaning and Decoration	Committee of Visitors	A. Marshall, Architect, King-street, Nottingham.
ROADS—			
Feb. 12	Richmond, Surrey—Supply of Road Materials, &c. (Eight Contracts)	Town Council	F. B. Senior, Town Clerk, Town Hall, Richmond.
" 12	Lancaster—Kerbing, Paving, &c., Road	Streets Committee	Borough Surveyor, Town Hall, Lancaster.
" 12	Peterborough—Cartage of Materials	Gas Company	J. Barlow, Manager, Gasworks, Peterborough.
" 12	Spilsby—Supply of Broken Granite and Slag	Rural District Council	F. J. Dixon, District Surveyor of Highways, Spilsby.
" 12	Nottingham—Formation of Road	Public Parks Committee	A. Brown, City Engineer, Guildhall, Nottingham.
" 12	Oundle—Cartage, &c., of Granite, &c. (Two Contracts)	Rural District Council	N. E. Dixon, Council's Surveyor, Oundle.
" 12	Hendon, N.W.—Granite, Limestone, Slag, &c.	Urban District Council	S. S. Grimley, Public Offices, Hendon, N.W.
" 12	Rugby—Granite	Rural District Council	J. W. Pender, Union Workhouse, Rugby.
" 14	Islington, N.—Wood Paving	Vestry of St. Mary	J. P. Barber, Vestry Hall, Islington, N.
" 14	London, N.W.—Supply of Broken Granite, &c. (Fourteen Contracts)	Hendon Urban District Council	S. S. Grimley, Council's Engineer, Public Offices, Hendon, N.W.
" 14	Banbury—Supply of Stones, &c.	Rural District Council	E. L. Fisher, Clerk, Horse Fair, Banbury.
" 14	Chesterfield—Supply of Slag and Limestone	Rural District Council	T. A. Busbridge, Surveyor, Eckington.
" 14	Chesterfield—Team Labour	Rural District Council	T. A. Busbridge, Surveyor, Eckington.
" 14	East Retford—Supply of Granite	Lambeth Vestry	J. D. Kennedy, Borough Surveyor, East Retford.
" 14	London, S.E.—Supply of Granite, &c.	Rural District Council	J. P. Norington, Vestry Hall, Kennington-green, S.E.
" 14	Macclesfield—Supply of Roadstone, &c.	Shoreditch Vestry	Assistant Clerk, Union Offices, Macclesfield.
" 15	London, E.C.—Wood Paving Carriageway	Urban District Council	J. E. Dixon, Surveyor, Town Hall, Old-street, E.C.
" 15	Tottenham—Works and Materials	Vestry of St. Mary	E. Crowne, 712, High-road, Tottenham.
" 16	Westminster, S.W.—Works and Repairs, Ballast, &c.	Corporation	G. E. W. Wheeler, Town Hall, Caxton-street, S.W.
" 16	Birkenhead—Horses, &c., for Street Watering, &c.	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 16	Birkenhead—Supply of Flags, Granite, &c.	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 16	London, N.W.—Broken Granite, Ragstone, &c. (Twenty Contracts)	Vestry of St. John, Hampstead	Surveyor, Vestry Hall, Hampstead, N.W.
" 16	Sevenoaks—Rural Extension	Rural District Council	W. S. Fox and Taylor, Surveyors, Edenbridge, Kent.
" 16	London, E.C.—Paving, Wood Blocks, &c.	St. Luke's, Middlesex Vestry	G. W. Preston, Clerk, Vestry Hall, City-road, E.C.
" 16	London—Supply of Broken Granite, &c.	Hammersmith Vestry	Surveyor, Town Hall, Broadway, Hammersmith.
" 16	Greenwich—Paving	Board of Works	141, Greenwich-road, S.E.
" 17	West Bridgford, Notts.—Paving Footpaths, &c.	Urban District Council	W. Pare, Surveyor's Office, Bridge-grove, West Bridgford.
" 17	London, W.—Asphalt Paving	St. James's Vestry, Westminster	T. H. Munsey, Vestry Clerk, Vestry Hall, Piccadilly, W.
" 19	Bedford—Broken Granite, Slags, Flints, Gravel (Four Contracts)	County Council	County Surveyor, Shire Hall, Bedford.
Feb. 21	Headington—Supply of Flints, &c.	Rural District Council	L. Turner, Hartfield Cottage, New Headington, Oxon.
" 21	London, N.—Supply of Granite, Ballast, &c. (19 Contracts.)	Vestry of St. Mary, Islington	W. F. Dewey, Clerk, Vestry Hall, Upper-st., Islington, N.
" 24	Kingston-on-Hull—Hardwood Paving, Flagging, &c.	Corporation	A. E. White, Town Hall, Hull.
" 28	Manchester—Supply of Horses, &c.	Watch Committee	Deputy Chief Constable, Town Hall, Manchester.
March 9	Belper—Road Materials	Rural District Council	R. C. Cordon, Surveyor, Hazelwood, Derby.
No date.	Anstey—Road	Corporation	A. F. M. Downie, Alton, Hants.
"	Harrogate—Leveling, Paving, &c.	Urban District Council	S. Stead, Borough Surveyor, Municipal Offices, Harrogate.
"	Brierfield—Sewering, Paving, &c. (Two Contracts.)	Urban District Council	J. T. Landless, C.E., Station Buildings, Nelson.
SANITARY—			
Feb. 14	Birkenhead—Removal of Night Soil	Corporation	Chief Inspector of Nuisances, Town Hall, Birkenhead.
" 14	Tipperary—Construction of Sanitary Works	Workhouse Guardians	J. Gubbins, Clerk, Workhouse, Tipperary.
" 16	Burnley—Pipe Sewers, Manholes, &c.	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
" 16	Sevenoaks—Drainage Works, &c.	Rural District Council	Fox and Taylor, Surveyors, Edenbridge, Kent.
" 16	Cheadle, Staffs.—Sewer and Six Manholes	Rural District Council	F. T. Inskip, Surveyor, Brook House, Cheadle.
" 16	Hove—Stoneware Pipes, Traps, &c.	Urban District Council	H. H. Scott, Town Hall, Hove.
" 17	Aston Manor, Birmingham—Construction of Pipe Sewer	Urban District Council	H. Richardson, Engineer, Council House, Aston Manor.
" 17	Cork—Construction of Sewers	Union Guardians	J. Cotter, Clerk, Board-room, Cork Workhouse.
" 18	Uxbridge—Construction of Pipe Sewers, &c.	Rural District Council	J. Anstie, 17, Victoria-street, Westminster.
" 19	Lutterworth—Construction of Main Sewer	Rural District Council	J. C. Coates, Council's Surveyor, Bitteswell, nr. Lutterworth.
Mar. 2	Oldham—Concrete Sewer	Surveyor's Committee	S. A. Pickering, Borough Surveyor, Oldham.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 28	Winchester—Plans for Public Baths	£25, £15	Town Council
Mar. 1	Newcastle-on-Tyne—New Infirmary (Local Architects).	(No First), £150, £100, £50	Building Committee.
" 14	Berwick-on-Tweed—Plans of Police Station & Lock-up	£50, £25	Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major Cameron, R.E., Colonial Offices, Downing-st., S.W.
Aug. 31	Stockholm—Designs for Stations, Junctions, &c.	£656, £438, £219	Royal Administration of State Railways.
No date.	Ecclmachan, Linlithgowshire—Lunatic Asylum ... ..	... ..	Edinburgh District Lunacy Board.
"	Lewisham, S.E.—Designs for Clock Tower ... ..	... ..	Local Committee.

HAMPTON COURT PALACE.*

By JOHN BELCHER.

THE public buildings of this country receive scanty recognition as works of architectural merit. As a nation we have little respect for anything outside our commercial interests, and it is not surprising that there is indifference to, or ignorance of, Architecture, seeing that it is regarded by the many as a mere decorative or advertising medium. Where any historical interest envelops a public building it is visited and admired, though its Architecture *per se* may fail to delight or stir emotion. In speaking of a building like Hampton Court, I shall consider it from the architectural standpoint, and not be biased by any sentimental regard for its ancient charms. The glamour of mediævalism is apt to tempt some to invest any ancient building with a superior architectural value. Without undue reverence for the past, we may safely allow our admiration and affections to go out to every part of Hampton Court, and we can make use of its archaeological facts, to trace the architectural developments made necessary to meet advanced requirements. Most palaces come under the category of "Public Buildings," but Hampton Court has the further distinction of being

A COMBINATION OF DOMESTIC AND PUBLIC BUILDING.

It is not only a building for State purposes and ceremonies, containing a series of reception rooms, with a few Royal living rooms, also, of more or less public character, but it is a palace which exemplifies both the stately magnificence which appertains to Royalty, and the domestic life peculiar to and fostered by this country. Its beginnings may have imparted to it the homely character it still retains. Before it became a Royal palace, there was a country mansion on the site, and to this Wolsey probably added his palace. We find it spoken of as a small "Manor House on the bank of the Thames, standing in about 2000 acres of land." It belonged after the conquest to the De St. Valery family, who in 1217 handed it over to the Knights of St. John of Jerusalem. About three hundred years later this estate, with the Manor House, which has always been known as "Hampton Court," was leased for ninety-nine years to Cardinal Wolsey, at a rent of £50 a year. From this time, its history as a palace commences, and building operations on an extensive and commendable scale were proceeded with. Our sympathies at once go out to

THE FORTUNATE ARCHITECT.

But it is not very clear whether there was any architect, for such works were most frequently carried out by a combination of artists who worked together on traditional lines in perfect harmony—the architect, the master mason, the master carpenter, and all the several artificers keeping within the limitations of their respective crafts and thoroughly understanding the needs of each. Probably the men were accustomed to work together without drawings, much as the Hungarian gipsy bands discourse their wild music without knowing anything of musical notation. No doubt there was a leader or supervisor, whether called surveyor of works, or clerk of works, or (later) architect. He was "first amongst equals." Seventeen years later, when the work was carried on by Henry VIII., there are two names mentioned in the Hampton Court bills—Henry Williams, a priest, "Surveyor of Works" at Hampton Court, who would appear to have supervised all the details, and Eustace Mascall, who was "Clerk of Accounts." The latter is sometimes spoken of as the "Clerk of the Works," and was also clerk of the works under the Cardinal for his College at Oxford, where the details are similar to those at Hampton Court. It is interesting to note that these titles are still kept up at Hampton Court—there is still the

"Clerk of the Works," the "Master Mason," the "Master Carpenter," and so on. These and

THE TRADITIONAL METHODS

have been passed down from the sixteenth century without any break. Mr. Law, the able historian of Hampton Court, to whom I am indebted for so many details which his patient research has brought to light, remarks that, after an examination of the carefully preserved accounts for the several works during the reign of Henry VIII., he finds that the workmen were all Englishmen. He says "Even the most delicate carvings and paintings of the roof of the Hall, which are sometimes stated to have been the work of Italians and other foreigners, are proved to have been entirely executed by men so palpably Anglo-Saxon as Michael Joiner, Richard Ridge, of London, John Wright, of South Mimms, John White, of Winchester, John Hobbs, Henry Blankston, John Hathe, Reginald Ward, of Dudley, John Spencer, of Hampton, John Reynolds, of East Moulsey, &c." This, of course, is highly satisfactory. Still, we know that both Wolsey and Henry VIII. had part in bringing about that development of Architecture which we know as the Renaissance, for they both imported Italian workmen, and they both employed them at Hampton Court on decorative work. These foreigners were not builders, but only carvers and decorators, and we can trace their influence in the work of the Englishmen.

THE WELL-KNOWN TERRA-COTTA ROUNDELS

on the gateway turrets were made by an Italian, Giovanni de Majano (£2 6s. 8d. each). They were similar to the terra-cotta busts used by Holbein in the gateway at Whitehall, and like them were fixed in the turrets. This use of terra-cotta is fair and legitimate. It is obviously not a constructive material, and the early instincts of the honest builder kept it in its proper place. Another example is in the plaque containing Wolsey's arms—also in terra-cotta. These and the roundels have well-developed Renaissance details, which were evidently not regarded as in any way incongruous by Wolsey or Henry VIII. The ceiling and frieze in "Wolsey's closet" is, like other plaster work of the period, no doubt the work of Italians. On the other hand, the great pendants of the hammer-beam roof of the Great Hall, which are Italian in character and feeling, were the work of a Londoner, Richard Ridge, who had come under the refining influence of the Renaissance. We will now pass through the buildings erected by these workmen

UNDER WOLSEY AND HENRY VIII.

It is not improbable that the old Manor House, which he found on the site, was incorporated by Wolsey in his new building. This would seem the more likely, as, about a year after the commencement of the work, he received the King and Queen there. And in some old prints there is represented what might be the old manor in the centre of the east front. No trace of this is left, so that the matter is one of more interest to the archaeologist than the architect. Wolsey was a man of large ideas and sumptuous taste, and the magnificence of his palace filled his countrymen and foreigners with envy. The King himself evidently coveted it, and rather prematurely took possession of it. It was evidently a palace quite up to date in its arrangements and appointments. It was natural that the plan should partake of the collegiate quadrangular form. Yet on the west front there is a new departure to be noted, for at the western entrance two projecting wings form a three-sided court, each wing, however, containing smaller internal courts. It is difficult to determine exactly how much was included in Wolsey's palace, or how it was developed by Henry VIII., but I think Wolsey may have credit for the largest share in the scheme.

THE REGULARITY OF THE PLAN,

and especially of the entrance and first courts, proves this. It is true that the south and east fronts are represented on old plans and prints as very irregular, but existing buildings or

other needs may account for this. Hampton Court soon became a Royal palace, and from Henry VIII. to George IV. alterations and additions were in frequent progress. Those made by Henry VIII. considerably added to its attractiveness and importance. His work consisted largely in decorating and beautifying the existing structure, and in remodelling certain parts to make these suitable to the Royal requirements. He affixed the Royal arms, and added badges and heraldic devices, such as the rose, the portcullis, the fleur de lys, and crown on the buildings. Parapets and pinnacles were added, and the whole building "restored" quite in the modern manner. It is this treatment which increases the enjoyment of the archaeologists, who are apt to look coldly upon the

SUBSEQUENT ADDITIONS BY SIR C. WREN

about which no mistake can be made, and where there is nothing to argue about on the score of date. Who was responsible for the several buildings it is fortunately not necessary for me to determine—though the facts are interesting, it is rather the result which concerns us. It is impossible for me to do more than point out those parts and effects of the buildings which have struck me as worthy of attention, and I may perhaps be forgiven if I dwell rather longer and more lovingly upon the later Renaissance work than upon any other part. But before addressing myself to this congenial part of my subject I must direct attention to all that is good and excellent in the earlier work of the Tudor period. Perhaps the first thing that strikes us is the beautiful colour effects, partly due to age and atmosphere, but partly also to deliberate design. No doubt it was convenient—but it is thus proved to be a right principle—to use local materials as far as practicable. The bricks, we are told, came from Brouxham, Taplow, and other adjacent localities. Some of the stone came from quarries in Reigate, Barrington, and similar places, but Caen stone was also used where these were unsuitable. The oak was brought in large quantities from Dorking, Holmwood, Leatherhead, Banstead, Bere-wood, and St. John's Wood.

WITH REGARD TO THE EXTERNAL EFFECTS.

the beautiful texture was obtained by the inequality of the bricks, and the use of vitrified bricks in squares and lozenges. It is this which imparts to the whole that purple tone which is so admired. I do not believe that this was done from a dislike to plain surface—that is a modern complaint—because there is no great regularity in the position of the hatching, but it is touched in, much as an architectural draughtsman might resort to a little cross hatching to suggest colour to the surface. This treatment of the surface has been carried a little further in the first court, where there is a frieze or band of lozenges regularly placed and repeated. I draw attention to it as it occurs again in the Hall and Clock Court. This does not prove that the Hall was not the original one built by Wolsey, thought it was not then the habit to reproduce and copy the original work on making additions. I am inclined to believe that Henry VIII. did not rebuild

WOLSEY'S HALL,

as has been thought, but that he merely put on a new roof or otherwise finished it. The Hall is by no means larger than many noblemen's halls which were in existence when Wolsey commenced his. Penshurst had been built in 1520 and New Hall in 1524, and Wolsey was not a man to submit to be outdone by others. Originally there had been an open lantern in the roof to let out the smoke from the wood or the fire-dogs in the centre of the floor, as seen in the older hall at Penshurst; but there is no sign of there ever having been one in the present roof. The use of chimneys, especially of shafts or terminals, was recent, and attention was drawn to this aristocratic novelty by the elaborate and varied treatment of the shafts. It is this frank treatment of a new feature or requirement which we do well to note. Instead of hiding it, or endeavouring

* A paper read before the Architectural Association on Friday, February 4th.

to represent something else of an earlier date, advantage is taken of it in the design. Its purpose is recognised, while it is used as a decorative feature. Most, if not all, of these cut brick chimney terminals have had to be rebuilt, and pipes have been introduced to make them more operative. It should be remembered that they were more or less an experiment. As a picturesque feature they are so successful that they have been imitated, though not rivalled, during the Gothic revival, whereas the men of the "Later Renaissance," such as Wren, still following true principles, discarded the separated shafts for the practical reason that by grouping or combining several flues in a square mass they gained in effectiveness. It is obvious that if the flue exposed to the external air is of thin brickwork (and that cut) it will be cold and the smoke will not pass easily; whereas if the flues are grouped together and have good outside enclosing walls, like the large chimney stacks of the later work by Wren, they will be serviceable. Again, those

CHIMNEY BREASTS AND STACKS,

especially on the west front, illustrate how the spirit of the Renaissance was already at work in the feeling after uniformity and balance of parts. Indeed this west front becomes a "façade" by its dignified regularity, and is a new departure in domestic building. Its form is the prototype of many mansions of a later date. We must not linger outside, but return to the "Clock Court." Here are the entrances to the Royal apartments. Opposite to the Clock Tower is the entrance to the Queen's Great Staircase. This has been disfigured by some Gothic revivalist in the reign of George II. who has somewhat needlessly affixed the date 1732 to his work. It is injurious to look at, and fortunately there is something else which instantly commands our attention. On the south side is the entrance to the King's Great Staircase, and now the wider we open our eyes the better. Here is something essentially masculine. Here we have our first taste of

THE LATER RENAISSANCE WORK.

The magnificence of that colonnade in scale and proportion impresses us at once. Even Mr. Law, whose archaeological sympathies are centred upon the Tudor work, and who cannot forgive Wren for removing or hiding any of it, admits that this colonnade is most creditable. It is in itself, he says, very handsome, "though out of place amidst Tudor surroundings." For my part I cannot imagine anything finer for the purpose. It tells its tale quite plainly; and without pretending to belong to the original building, it takes its proper place in its history, and brings it up to the date. I find myself speechless before it. What is it which gives it such impressive charm? We know it is 89ft. 4in. in length; that it is 20ft. 6in. in the clear inside, and the height to the top of the parapet is 27ft. 9in.; but these dimensions are nothing extraordinary. It is the exquisite proportion, the subtle setting out of the spaces which entrances the beholder. That trick of coupling the columns, which Wren learnt from Bernini in Paris, and which he employed at Chelsea and Greenwich Hospitals, is effectively made use of here. But instead of what is known as "Wren's favourite Doric," just look at those Ionic caps! You must go and sketch them carefully to appreciate them. The carving of these and of the vases with ornamental trophies under them which mark the centre, is all excellent.

THE COLONNADE

faces the north; yet you never seem to want the sun to brighten it up, so admirably is it lighted and so well do the internal reflections dispel all gloom. The irregular setting out of the ceiling is the only thing I have never quite liked. I feel the same at Greenwich, where the ceiling under the regular colonnade is broken up. The continuous coffer would, I should imagine, have improved the perspective. But Wren did nothing without a purpose, or without consideration, and I should much like to know his mind upon it. I should

like also to keep you longer at this colonnade, but I have other interesting works to inspect with you. This entrance, while it does not in any way clash with the surrounding buildings in this court, is the legitimate outcome of the Renaissance initiated by Wolsey and Henry VIII. Standing in this court you can take in the condition and progress of Architecture from Wolsey's time in 1514 to George II.'s in 1732. It was not the influence of William III. which brought about this result, for we know that before his accession in 1698

SOME OF THE FINEST WORKS OF THE RENAISSANCE

had already been carried out. In 1619 Inigo Jones had made his wonderful design for a Palace at Whitehall, and the small sample of his intended work was built. In 1678 the library of Trinity College was built by Wren. St. Paul's was commenced 1675, Chelsea Hospital in 1682, Winchester Palace (intended to rival Versailles) in 1683, and Kensington Palace in 1689, so that many notable buildings were built or in hand, and Architecture was developing rapidly. If at Hampton Court the transition may seem sudden, we have to remember that no structural additions of any importance were made from Henry VIII's time until William and Mary's reign—i.e., 1530 to 1690. Only in the internal fittings and decorations is there any indication of the early Renaissance. Little was done in Elizabeth's reign, except in the garden; only a few rain-water beads have her initials on them, and these, like those of Henry VIII., are decidedly Renaissance in character. In James I.'s reign Inigo Jones was appointed surveyor in 1615, but I cannot discover any work of his in existence. His time was probably taken up in arranging the masques in the Great Hall for the Queen, and his imagination was exercised in wonderful architectural vistas and scenic effects. Mr. Law tells us in his interesting book that the players were a company entitled the "King's Company of Comedians," who had been incorporated by a warrant of King James a few months before, and that the second name on the roll is that of William Shakespeare, who was no doubt present in the palace. Even in Elizabeth's time

THE SCENERY

was of a most realistic character, so that in spite of the general idea to the contrary, stage scenery is by no means modern, though it may be more perfectly adapted now. It was fortunate for William and Mary that with the occasion for additions, there was the man at hand. The King was delighted with the place and its capacities, and determined to bring it up to date, as he considered it wanting, as no doubt it was, in many of the conveniences of a modern palace. Mr. Law suggests that William was captivated by the long straight canal fringed with avenues of lime trees—such as met his eye at Haarlem and the Hague. I admire the King's taste; and the canal is a most effective feature. But I must not digress. Wren was set to work, and fortunately for him there was no society for the preservation of ancient buildings in his time, and not being a sentimental person, and having no great sympathy for Tudor work, or for that part of it which was irregular and broken up, he did away with the irregular and inconvenient south and east fronts. If we examine

WREN'S PLAN

we can readily see that it was determined by the aforesaid long canal on the east side. A centre line drawn from this to a point cutting the lines of the converging avenues would, to the mathematically-minded Wren, give the centre and building line of the new front, and this front would be at right angles with the centre line. From the centre to the south corner the length covers the old buildings, and, of course, the length from the centre to the north corner is just equal to it. The total length of this front is 300ft. Again, the south front is at right angle with the east, and is 315ft. long, a length which was fixed also by the buildings existing in the rear. Behind

these fronts was an old court, called "Cloyster Green Court." The position of this court could not be altered by Wren in his reconstruction, and he therefore built on the old lines the new court known as Fountain Court, without reference to the centres of the new south and east fronts. The court is 116ft. 10in. on the north and south sides. The east side is 110ft. lin., but the west is 1ft. lin. shorter. This arises, as we may gather from the plans, in effecting a junction with the old and irregular walls. These works, commenced in 1689, were left unfinished at the death of Queen Mary in 1694, and little further was done until 1698, when the destruction of the palace at Whitehall by fire determined the King to complete his palace at Hampton Court.

(To be continued.)

KEYSTONES.

THE final audit of the account for the restoration of the fabric of Gloucester Cathedral states that the total sum raised is £9789.

THE new club house of the Lytham and St. Anne's Golf Club cost over £10,000, and is on the new links between Lytham and St. Anne's.

THE foundation-stone has been laid of new premises for the Mosely Social Club, to be erected at a cost of £675. Mr. J. Brewin Holmes is the architect.

SIR JOSEPH CROSLAND has made a gift of £1000 to a fund for the erection of a church in the parish of St. Barnabas's, Crosland Moor, Huddersfield.

THE Manx Tynwald Court has insisted upon an inquiry into the causes of the proposed additional £20,000 expenditure on Douglas drainage, the total now being £55,000.

AN enquiry has been held at Birmingham in reference to the application of the City Council for sanction to borrow £10,000 for the site of a new lunatic asylum, and £12,510 for the erection of a refuse destructor.

A WESLEYAN CHURCH has been erected at Acrefair—a mining village midway between Llangollen and Ruabon—at a cost of £1000. Mr. J. W. Jones, Brooklea, Acrefair, was the architect.

THE Trowbridge committee having charge of the arrangements for technical and secondary education are taking steps to erect central and commodious premises on the recently acquired site at the top of Castle Street. The scheme is estimated to cost fully £10,000.

THE old Horse and Groom, at the corner of Leather Lane, Holborn, which is to be demolished, is said to date back at least 300 years. It was not, in old times, a public house, unless it has changed its sign, for Strype, although he mentions three inns—the White Hart, the Nag's Head, and the King's Head—does not refer to a Horse and Groom.

A LOCAL GOVERNMENT BOARD enquiry has been held at Newcastle-on-Tyne into the application of the City Council for sanction to borrow £3723 for alterations and improvements to the Town Hall and the Guildhall, £1000 for the provision of an underground lavatory, &c., in Shakespeare Street, and £1000 for alterations at the Northumberland Baths.

ISLINGTON having some time ago acquired of the City Corporation two open spaces beside the Caledonian Road Cattle Market, the local vestry surveyor estimated that £10,500 would be needed to lay the grounds out in an attractive manner. His plans included a museum for "natural objects," designed for the instruction of youth. The vestry has cut down the estimates to £8000. The majority of the vestry were opposed to the museum as unnecessary.

THE M'Ewan Hall having been opened, the contractors for the Edinburgh University Extension Scheme entertained the clerk of works, Mr. Allan E. L. Clark, to dinner in the Royal Hotel a few evenings ago, and presented him with a handsome silver replica of the Warwick Vase and a tachometer, in recognition of his labours and unfailing courtesy during the twenty years in which he has been engaged superintending the progress of the University buildings.

L.C.C. WORKS DEPARTMENT.

LOSSES AND GAINS.

THE adjourned report of the Finance Committee, submitting half-yearly statements of works executed by the Works Department for the half-years ended March, 1897, and September, 1897, was considered at the meeting of the London County Council recently. The "losses" on ordinary works up to the latter date showed them to amount to £24,485 8s. 9d. On "jobbing works" up to the same date a total profit of £4,683 7s. 1d. was shown. In his report upon the losses, Mr. Adams, manager of the Department, stated that some of the works, although only recently reported, were executed during 1896, previous to his having control of the Department, and others were so far advanced that it was not possible to effect any improvement before they were completed. On the other hand, there had been errors of judgment and defects in the organisation, which must have been accountable for some portion of the losses in two or three instances. He had endeavoured to remedy this, and had largely reorganised the general working of the Department. Work which formerly it had been customary for the Department to put out to tender was now done by their own men at a large saving. They could not hope that they would be as successful in every work any more than a contractor would be, but there was no doubt that they would reap a large benefit during the coming year from the improvements which had been carried out.—The Finance Committee also presented a "statement of the whole of the estimated works commenced, completed, and certified since the change in management in December, 1896." This was as follows:—

Name of Work.	Estimate.	Cost.	Saving.
	£ s. d.	£ s. d.	£ s. d.
Boundary Street—Churchyard wall	1,149 8 7	1,026 12 5	122 16 2
Boundary Street—Paving Central Avenue	143 12 0	109 19 10	33 12 2
Westminster Fire Brigade Station—Painting	98 19 7	82 5 2	16 14 5
Waterloo Fire Brigade Station—Painting	176 3 4	154 17 0	21 6 4
Battersea Park—Painting	1,942 8 0	1,897 9 5	44 18 7
Mill Lane—Paving	7,749 17 2	4,754 10 6	2,995 6 8
Boundary St.—Temporary roads	119 16 0	112 9 1	7 6 11
Deptford Fire Brigade Station—Alterations	658 8 5	489 13 0	168 15 5
Rotherhithe Fire Brigade Station—Repairs	71 9 8	67 10 0	3 19 8
Wandsworth Common—Escape Standing	942 12 5	897 3 4	45 9 1
Wood Lane—Paving	130 0 0	122 1 3	7 18 9
St. George's Road—Drainage	237 15 0	233 14 6	5 0 6
Central Works—Making good foundations of old workshops	232 12 1	204 12 4	27 19 9
Scotland Yard Fire Brigade Station—Sanitary work	694 2 0	529 16 1	164 5 11
Lincoln's Inn—Painting and repairing railings			
Lincoln's Inn—Painting shelter			
Totals	14,347 4 3	10,681 13 11	3,665 10 4

This shows a saving at the rate of 25½ per cent. The Committee also gave a table of the jobbing works certified since the change in management, of which the total schedule value figures at £25,308 10s. 7d., and the total actual cost at £23,150 7s. 3d., showing a saving of £2158 3s. 4d., or 8½ per cent. Putting estimated and jobbing works together, the estimate comes out at £39,655 14s. 10d., and cost at £33,832 1s. 2d., showing a total saving of £5823 13s. 8d., or 14½ per cent.—After considerable discussion the reports were adopted by the Council.

PUBLIC WORKS.

Upon the recommendation of the Finance Committee, it was agreed to lend the Hamstead Vestry £5900 for paving works, and additions to the vestry hall; the Lewisham District Board £18,225 for sewage and other works, coroner's court, &c.; the Wandsworth District Board £4000 for paving works; the Guardians of the Holborn Union £8400 towards the cost of the erection of a laundry, and for alterations and additions at the Mitcham Schools; and the Poplar Guardians £15,560 to purchase schools.

Professional Items.

ABERTILLERY.—A new school for the Abertillery Intermediate School district, which comprises the area from Nantyglo to Crumlin, in the Western Valleys of Monmouthshire, has been erected. Messrs. Swash and Bain, of Newport, were the architects, and Mr. David Lewis, of Llanhilleth, was intrusted with the contract. The school, which is of two stories, provides class-room accommodation on the first floor for forty girls. There are also a class-room for cookery, provided with rising tiers of seats and the usual apparatus, and a commodious assembly hall, centrally placed, in conjunction with which, by an arrangement of revolving shutters, an adjoining class-room can be used. The hall, class-rooms, and corridors are finished throughout with stained and varnished wood dadoes, and the internal roof has open timber with carved and moulded brackets. The boys' department occupies the ground floor, provision being made in the respective class-rooms to accommodate sixty boys. There is a chemical laboratory, with up-to-date fittings, &c. Private rooms are provided for the master and mistress on the first and second floors respectively, as well as store-rooms and cloak-room accommodation. The floors are sound-proof and fire-proof. The external walls are built with hammer-poled local stone, the dressings being of Bath stone and Ebbw Vale buff brick. The contract amounts, together with the cost of retaining walls, to £2430.

AYR.—A new church is to be erected in Ayr on a site at the angle of Midton and Carrick Park Roads. The church has been designed by Mr. John B. Wilson, Glasgow. Gothic of

a limited area, a wide nave and aisles have been adopted, occupying an area of 80ft. by 60ft. Above the aisles are spacious galleries, supported on cast-metal columns, which also carry arcading, on which rest the main roof timbers. The main front faces York Road, and is flanked on the south side by a massive tower with octagonal turrets, above which rises a stone spire, with gilt copper vane 125ft. high. Double light traceried openings are placed in the tower, which also contains a staircase to the gallery. On the opposite angle a second staircase affords additional accommodation. A five-light, richly-cusped, and mulioned window forms the central feature of the façade, which is surmounted by a lofty gable, with stone finial. Access to the vestibule is gained through two wide moulded doorways, having engaged shafts, with moulded and carved caps, from which spring Tudor arches. An ornamental cornice adds richness to this portion of the front. The side walls have boldly projecting buttresses with recesses between them, each pierced by a lofty, pointed window. Paterae are placed in the eave cornices, and on the sides of the main gable. As far as possible the interior has been designed to harmonise with the style selected. The windows are filled with cathedral glass having varied tints and borders. The pulpit has mouldings and columns of American walnut. A special feature has been made of the ceiling, which is divided into a series of panels, moulded and sheeted. Mr. Thomas McMillan, Ormeau Avenue, was the contractor, and Messrs. Young and Mackenzie the architects. The heating has been executed by Messrs. Musgrave and Co., Limited, and the ornamental gasfittings by Mr. G. Jones, Great George's Street.

BRISTOL.—The design for the new reredos to be placed in Bristol Cathedral, as a memorial to Bishop Ellicott, is an elaborate structure in stone of a size and importance proportionate to the cathedral. It is upwards of 17ft. wide, and rises to a total height of 27ft. from the floor of the sanctuary. The lower part behind and above the altar is plain, with a tall centre panel to inclose the altar cross; on either side of the upper half of this panel is an enriched arcade of four divisions. Above this lower part the centre portion (which takes the width of the altar and is about 10ft. wide) is corbelled boldly forward, and to the right and left of this there are enrichments from the floor upwards of traceried panelling, surmounted by niches, with figures of Old Testament Saints on the left, and New Testament Saints on the right. Above the level of the top of the corbelling, before mentioned, the whole of the reredos has one general treatment of wide niches in one, two, and three tiers, with elaborate canopies and pinnacles, separated by narrower features, also enriched with niches and sculpture. The Crucifixion, with SS. Mary and John occupies the centre niche. Other niches contain figures of saints and angels, with their emblems. The lower part of the back, or eastern side of the reredos, is also richly panelled up to a height of 14ft., and above this it is divided up by buttresses with a series of niches. The centre one contains a representation of the Presentation in the Temple, and on either side of this St. Mary and the Archangel Gabriel (representing the Annunciation). There are other niches containing figures of saints and angels. A panelled and traceried screen 11ft. high, with buttresses and pinnacles, separates the eastern bay of the choir from its eastern chapel, flanking the reredos on either side.

CARDIFF.—Plans have been prepared by Mr. Frame, architect for the Marquess of Bute, for a suite of state apartments to be added to Cardiff Castle. The contract has been let to Messrs. W. Thomas and Co., contractors, Cardiff, by whom the foundations are now being put in. The new wing, as it is termed, will be inside, and parallel with the southern wall of the Castle, commencing near the clock tower. It will be, of course, connected with the main portion of the building.

BELFAST.—Castleton Church, recently erected at York Road, has just been opened. The style of architecture is Tudor Gothic, as the materials were red brick, with stone from Aspatria sparingly introduced. As a large congregation required to be accommodated in

DUNDEE.—The Salaries Committee of Dundee School Board have had under consideration the salary of the architect. It appeared that Mr. Langlands was paid for general superintendence and attention to the repairs of the schools at an annual salary of £30. When that remuneration was fixed, however, he was from time to time in receipt of commissions on the work of erecting new schools and adding to existing buildings, these commissions forming a very considerable addition to his salary. For some years this source of revenue has disappeared, and the consequence is that Mr. Langlands now receives £30. The committee were generally of opinion that the salary was inadequate for the labour, trouble, and responsibility attaching to the office. At the same time several members thought it would be desirable, before any augmentation took place, to have before them a return for the last ten years of the total emoluments of Mr. Langlands, and a resolution was moved to that effect, but the motion was defeated. A suggestion was made that the committee should consider whether it would not be better to have the offices of architect and clerk of works conjoined, and upon that point a long conversation ensued. In the course of the talk several members thought that the doubling of Mr. Langland's salary—thus raising it from £30 to £60—would be a very fair increase, having regard to the many advantages he had received in the past at the hands of the Board. Ultimately it was decided, by 5 to 2, to recommend that Mr. Langland's salary be advanced from £30 to £100.

EDINBURGH.—A new pulpit of marble and alabaster has just been erected in St. Cuthbert's Church, Edinburgh. It stands on four columns of the choice red marble of St. Ambrosia, Verona, with bases and carved capitals of Italian alabaster. The front panel bears a representation of the Angel of the Everlasting Gospel. The other panels of the pulpit and balustrade are inlaid with Verde Antico marble from the ancient Thessalian quarries, which have not been worked since the time of Justinian till the blocks were taken out a few months ago from which the panels were cut. The work has been executed by Messrs. Farmer and Brindley, London.

GLASGOW.—The People's Palace and Winter Garden situated in Glasgow Green, which has just been opened, has a northward frontage to Monteith Row, and is in appearance, as well as in purpose, of a composite character. The front part of the building, constructed of Dumfries red stone, is utilised as a museum and picture gallery, and has direct communication with the adjacent winter garden, which is constructed of iron and glass, and is of such spacious dimensions as will make it conveniently available for assemblages of the citizens for musical performances and other purposes. The front building has been designed in the style of the late French Renaissance.

KING'S HEATH.—A new Wesleyan chapel has been erected at the junction of School Road and Valentine Road, King's Heath. It is 80ft. long by 49ft. wide internally, and 42ft. high to the top of the ridge. It is divided into nave and aisles by three wide arches on each side, supported by quatrefoil-shaped polished red Aberdeen granite piers, having doulting stone caps and bases. The chancel floor is laid with encaustic tiles, and a high dado of ornamental glazed tiles covers the lower parts of the walls. The east wall of the chancel has a fine five-light window, with a twelve-light "wheel" in its upper part. The gallery extends over the lobbies and the central vestibule, and its entrance and staircase are marked in the design by a tower and spire, the top being 120ft. above the ground. The architect is Mr. William Hale, of Colmore Row, who has based his design on the Early English period of Gothic Architecture, adapting it to the red terra-cotta and brick used generally in the exterior, and also in the interior dressings of windows, arches, and doorways. The cost

of carrying out the works, inclusive of school alterations, will be somewhat less than £6000.

KIRRIEMUIR.—A new baptismal font has been placed in the parish church, Kirriemuir. It has been erected in Caen stone from a design by Mr. Alexander Johnston, architect, Dundee. The design is in the Early English style, and shows a deeply-moulded octagonal base with centre column and four smaller shafts of Victoria red marble grouped at right angles, supporting a foliated carved capital, on which rests the bowl, which is circular in form, and has a richly-carved leaf ornament on the face. The bowl is finished on the top with a silver-plated basin to hold the water. The font has been erected by Mr. Alexander Neilson, sculptor, Dundee.

LEEDS.—About £14,000 is being spent on the rebuilding of Oxford Place Wesleyan Chapel and Sunday School. The front and one side of the old chapel have been taken down and replaced by more attractive elevations. The old Sunday school has been demolished, and the new school will be ready for occupation about May. After the opening of the school, the chapel will be closed for interior alterations. Mr. G. F. Danby, of Great George Street, and Mr. W. H. Thorpe, of Albion Street, are the joint architects. In the course of a year or two it is intended to build a Synod Hall adjoining the chapel. The architects have already prepared plans for such a building, their design showing a handsome tower. This scheme is estimated at £5000. A new chapel connected with the Woodhouse Moor Circuit is being built in Cardigan Lane, Burley. The estimated cost is £5500. The architect is Mr. G. F. Danby. From designs by the same architect, another chapel is being erected in Ladypit Lane, Helbeck. The cost will be about £1100.

MIDDLESBOROUGH.—The new Sunday Schools and Assembly Hall adjoining the Trinity Presbyterian Church stands at the corner of Corporation Road and Elm Street. The entrance hall is 26ft. by 8ft., and from it runs a cement concrete staircase to the first floor. On the ground floor, which is 15ft. high, there is a large room 55ft. by 26ft., which can be divided into three class-rooms by sliding partitions, two of the class-rooms being 26ft. by 18ft., and the third 31ft. by 18ft. From Elm Street access is given to a room 31ft. by 17ft., and then to a second room about 18ft. square. A staircase leads from this room to the retiring room behind the hall, and there is also a cloak-room 11ft. by 8ft., and ample lavatory accommodation. The splendid hall is 55ft. by 27ft., with platform at the end measuring 22ft. by 18ft. The hall has an open timber roof and is 14ft. high at eaves and 24ft. high to ceiling. The retiring rooms behind the hall are 31ft. 6in. by 18ft., with open fireplaces. The ground floor rooms have a wood dado 5ft. high, and the first floor 4ft. 3in. The whole of the wood-work throughout the building has been painted and varnished. The rooms and the hall are all well lighted by lofty windows, some glazed with cathedral tinted leaded lights. Viewed from Corporation Road the exterior of the building is faced with Normanby first quality red bricks, relieved with stone dressings, whilst in Elm Street, Linthorpe pressed bricks have been used with Normanby brick arches and stone dressings. Throughout the building the upper portion of the windows open for ventilation, and two large Boyles self-acting ventilators have been fixed to the ridge of the roof with shafts to same from ornamental pierced ventilators in the ceiling. Mr. Walter G. Roberts is the architect, and the whole of the work has been carried out under his supervision by Messrs. Perks and Son, Stockton, who have had the full contract.

WESTON-SUPER-MARE.—In a limited competition, for a new Wesleyan chapel, to be built at Weston-super-Mare, the design of Mr. W. J. Morley, F.R.I.B.A., of Bradford, was accepted. The building is designed in the decorative Gothic style, with tower and spire, and will cost about £5000.

Under Discussion.

THE WINTER SESSION.

ELECTRIC LIGHT.

Before the Glasgow Architectural Association—the president, Mr. W. T. Conner, in the chair—Mr. Wm. Brooks Sayers delivered a lecture, entitled "Electric Light, Heat, and Power—their Efficient Installation and Cost." The lecturer opened his subject by drawing a picture of what electricity could do to lighten the burden of existence. With electric light, heat, and power we would have no smoke, filth, or suffocating fogs, thus leaving everything fresh and clean without and within; we could pave our streets with asphalt, over which the rubber-tired motor vehicles would skim noiselessly. A descent, however, to the practical showed that much progress had yet to be made, which Mr. Sayers demonstrated in a clear and simple manner by tables and figures, comparing the cost of electricity, gas, and water, supplemented by a description of the different systems and apparatus for electric lighting, illustrated by examples.

COMPETITIONS AT EDINBURGH.

The first meeting of the session in connection with the Edinburgh Architectural Society was held on the evening of Wednesday, Feb. 2. Mr. W. N. Cumming, the president, occupied the chair. After the usual business had been transacted, the awards in the various prize competitions held during the past session were announced. These were as follows:—Hon. president's prizes for "a design for a branch free library, museum and picture gallery"—first, Mr. W. A. Mellon; second, Mr. W. Fairbairn; president's prize "for six sheets of measured work," Mr. J. H. Rutherford; vice-president's prize for "design for reredos and altar frontal for a country church," Mr. P. E. Nobbs. Mr. Cumming announced that Mr. John Kinross had consented to accept the hon. presidency, and then proceeded to sketch briefly the work proposed to be undertaken by the Society during the session upon which it had entered.

DETERIORATION OF ENGLISH ARCHITECTURE.

The annual dinner of the York Architectural Society was held recently, Mr. George Benson, president, in the chair.—Mr. George Corson, president of the Leeds Society, proposed "The York Architectural Society." He said provincial societies had been the product of the last twenty years, and he thought that it was a very good move to introduce them. They had no doubt followed the example of the engineers and the working men in forming unions up and down the country, and it was well that they should look after their own interests from a pecuniary point of view.—The President, in response, said that Society was instituted sixteen years ago. It was their privilege to live in a city where the spirit of the ecclesiastical, civil, military, and domestic life of the past found material expression in the buildings around them. Each of those buildings showed that the men of the past were able to produce some very good work. Their picturesqueness, peculiar outlines, the use of the timber in the natural form, all combined to make a picture in the streets for every passer-by to gaze upon and to think about. He regretted that it was felt necessary to sacrifice the old gateway at the entrance of College Street for public improvements, for it was the only remaining gateway of the walled-in Minster close.—Mr. A. Pollard proposed "The Royal Institute of British Architects." He said that they did not expect that the Royal Institute would become an educational institute, but from its close contact with similar societies in London they might be able to introduce or bring forward a scheme whereby the prominent members of the Institute might be induced to come into the provinces to give them the benefit of their experience.

—Mr. W. Emerson, hon. sec., responded. It had never been the idea of the Institute to become an educational body. That was more than they could possibly entertain. Their object was to attend first to the professional interest of their Profession at large. Their action in matters of that sort was strengthened by the alliance of the provincial societies, but the Institute had always the idea of becoming an examining body, and that during the past year had been fairly well accomplished, and the examinations were now held regularly. He went on to say that he had been much struck lately with the deterioration in English Architecture. Why was this deterioration, and why was the difference between the buildings erected and the drawings shown? Was it because they were anxious to make pretty drawings to win competitions and please their clients, or was there a decay of good taste? If so, why was it? Was it because of the decadence of the nation? It had set him thinking that in ancient Greece, in its later years, it arrived at the Corinthian style, and made its buildings very elaborate, but exceedingly beautiful. This only happened when the nation was going in for a course of luxury, and shortly after the nation was wiped out. The Roman nation began with severe but beautiful buildings. Towards the later period, when they came to the composite order of Architecture, with its elaborate decoration and workmanship, they were in the most luxurious and vicious state of society the world had seen. From that period he supposed that they could say with truth they began to decline and fall. The Mahomedan Architecture culminated in the Alhambra, a gorgeous piece of work, but not to be compared with the early work in Egypt and North Africa, and shortly after that time they gradually wasted away in power. After the time of Henry VII. the English nation went through the fiery trial of the Reformation, and since then we had certainly a simpler style of Architecture, but during the last twenty or thirty years we seemed to be falling away, we seemed to be coming vicious, and Architecture had gone mad. Was it that the nation was on its wane and the taste was becoming vulgar? Did it mean that we had to become purged by the great war they heard of? He had great faith in the British nation, and if they did have a great war would they come out purified as a nation, and purified in taste with regard to Architecture?

REFUSE DESTRUCTION BY FIRE.

At a recent meeting of the members of the Yorkshire Branch of the Sanitary Inspectors' Association, held at Leeds, Mr. George Darley, superintendent of the Leeds Scavenging Department, read a paper on "The Destruction of Towns' Refuse by Fire." Destructors, he remarked, had been in use at Leeds for twenty years. There were at the present time four, capable of consuming 80,000 tons of refuse per annum. The temperature obtained was from 1200 to 1500 degrees Fahr. Mr. Darley affirmed that it would not be at all satisfactory to work a destructor without some means of obtaining the highest possible temperature, either by steam jets or fans. He also added that the cost of dealing with a ton of refuse in Leeds was about 1s. 6d.—During the discussion, Mr. Drake said that a large amount of the Huddersfield refuse was disposed of by means of tips, and, as greater care was now taken in regard to the tipping, there were fewer complaints than had previously been the case.—Mr. Denham expressed the hope that small destructors, costing £30 or £40, would be made, so that in colliery villages the refuse from the pits might be got rid of.—Mr. Travis (Halifax) said that Halifax was very well situated in regard to tipping places. His experience was that even those authorities which had destructors tipped their ashes when they had the chance to do so, in order to save the shilling a ton which it cost to burn the refuse.—The Hon. Secretary expressed the opinion that all tipping of refuse ought to be severely condemned, as a source of great danger to present generations and those which were yet to come.

Enquiry Department.

NOTICE.

Readers manifest a desire from time to time to assist those who avail themselves of the Enquiry Department instituted in this Journal, and many supplementary replies answering points raised in the Enquiry Department have been received from all quarters. The Editors, therefore, have decided, in order that Enquirers may benefit also by these kind offices, to publish the supplementary answers, in addition to the answers supplied by the technical experts associated with the staff of the Enquiry Department. The more widespread the information, the more effectually will the purposes of the Enquiry Department be served, and the Editors invite replies from any to whom the questions appeal, as they appear. Such answers must be to hand not later than Saturday morning for the forthcoming Wednesday's issue.

THE ROYAL ACADEMY SCHOOLS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you, or any of your readers, give me some information as to the steps to be taken to gain admittance to the Royal Academy Schools as an architectural student; and is there an age limit?—Yours faithfully,

STUDENT.

The best thing is to write to the secretary of the Royal Academy at Burlington House, who will supply you with a pamphlet giving you all the information you require. The age limit is twenty-three.

SUBSTITUTE FOR SAND IN MORTAR.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Through the medium of your columns in the BUILDERS' JOURNAL, I should esteem the favour of information on the following matter, viz.:—Would it be detrimental, or otherwise, for the making of good mortar (milled) to utilize the chippings and dust of Bath stone, as accumulated from stonemason's shed, as a part substitute for clean sharp sand, the proportion being $1\frac{1}{2}$ of sand, 1 of stone dust and chippings, and 1 of ground lias lime? Thanking you in anticipation of a reply, I am, Sir, yours faithfully,

"KENTISH RAG."

The chippings of Bath stone may be used with considerable advantage as a substitute for sharp sand, to the ultimate strength of the mortar, if they are carefully milled previously, but the dust, if very fine, should be sparingly introduced, or it will prevent the setting.

CONVERSION AND SEASONING OF TIMBER.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Some oaks, for the supply of the timber for the construction of a roof, are to be felled. What is the best way to form a fairly accurate estimate of the number of trees that would be required? There are seven large tie-beams for which the trees would have to be specially selected. Would it be necessary to cut down one or two extra trees for contingencies? How long will the timber take to become thoroughly seasoned?—Yours faithfully,

F. E.

It is very difficult to determine without experience obtained on the particular plantation how much serviceable timber may be expected from a standing tree. To approximate it take the smallest dimension with callipers, describe a circle of that diameter, within it

draw two transverse diameters, set off upon them points, 2in. within the circle, as allowance for sapwood, &c.; lines joining these points will give the sides of the largest baulk to be obtained. Select the largest and straightest trees for the tie beams, and cut on each side of the heart tangential to the annual rings, the slabs will convert into rafters, &c. It will be advisable to cut a few extra, as faults may be discovered during conversion. It is almost too late to fell this winter. October to December is the best time, there is then much less sap to get rid of. To become thoroughly seasoned two to three years will be required, but it will be fairly dry for roofing purposes, in twelve months if barked immediately on felling and stacked in open order well clear of the ground and protected from the sun and rain.

HALF-TIMBERED WORK.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be glad if any of your readers can inform me as to the best method to treat the oak timbers in a half-timbered building. Some I have seen are painted a dark colour, while others are either slightly stained, or oiled, and show the grain of the oak. I shall be much obliged by some particulars on the subject of this latter method of treatment. Also, is the effect of keeping back the cement $\frac{1}{2}$ in. from the face of the timbers considered to be better than, say, that of $\frac{1}{2}$ in.?—Yours faithfully,

CONSTANT READER.

Pine and larch timbers are usually painted; oak and teak more often left plain, varnished, or oiled, and sometimes covered with two coats of Carbolineum Avenarius, this turns it a light brown and acts as a preservative, but dries dull. If oiling is preferred use boiled linseed oil applied with a brush, stained, if desired, with burnt umber—experiment upon a piece for the right tint—or the wood may be previously stained with spirits of ammonia (fuming). The deeper sinking of the cement panelling referred to would doubtless be the more effective in appearance, but would tend to earlier decay. Odd work will be found almost invariably flush. If the cement is kept back the exposed upper edges of the timbers should be weathered.

DRAINING BASEMENTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—It is proposed to deepen a basement, lowering the present floor about 2ft. 6in. The drain is only about 6in. below the present floor line, and the water is standing in the soil at the level of the drain. I should be glad to have suggestions from persons who have had experience in similar work as to the best method of procedure in order to insure a thoroughly dry basement. It is not possible to alter the level of the drainage.—Yours, &c.,

ENQUIRER.

If it is not possible to alter level of present drain, the most economical method of draining the site will be to sink a sump pit at the lowest part and several feet below the intended floor, to collect the ground water, to be removed by pumping. Cover the ground with a 12in. layer of concrete, and build the walls in cement. This has proved successful in several instances in London.

A STAINED-GLASS window has been placed at the east end of Silk Willoughby Church, near Sleaford. It has been designed and executed by Mr. C. Whall at a cost of £300.

An enquiry has been held at the Burnley Town Hall relative to an application by the Corporation to borrow £25,000 for electric lighting, and £1700 for police stations.

The Secretary of State for Foreign Affairs has been informed by Her Majesty's Ambassador at Rome that tenders are invited by the Italian Government for the erection of certain public works in the harbour of Brindisi. Particulars as to the terms and notice for tenders may be inspected at the Commercial Department of the Foreign Office any day, between the hours of eleven and five.



IMPORTANT NOTICE

TO

Subscribers and Advertisers.

ADDITIONAL PUBLISHERS.

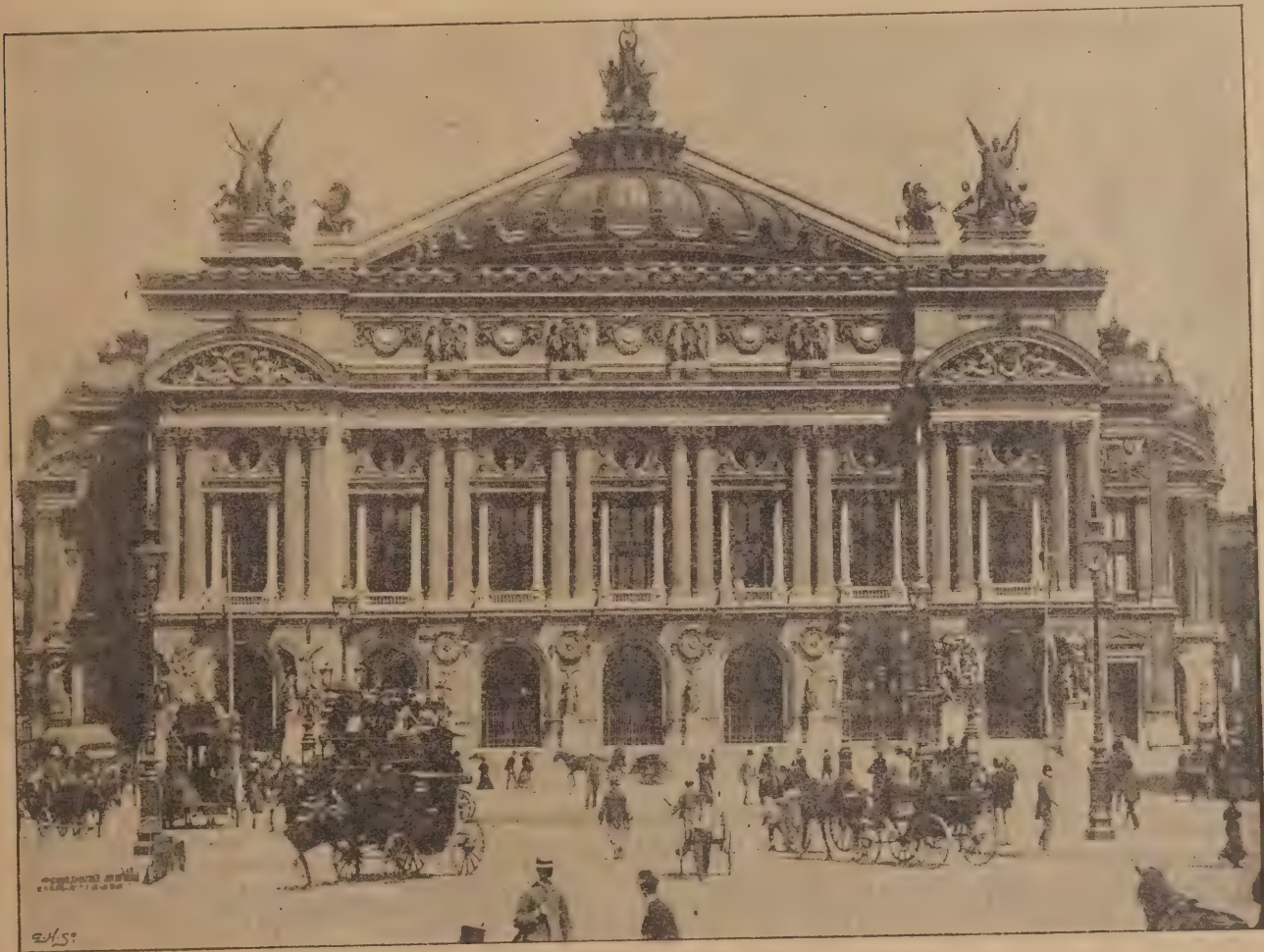
In order to cope with the widely-increasing circulations of "The Builders' Journal," and of "The Architectural Review," and

"The Field," and "The Law Times," will act as additional Publishers to "The Builders' Journal," "The Architectural Review," and "Specification."

Therefore the three publications will henceforth be issued from Effingham House, Arundel Street, Strand, as heretofore, and from the Offices of "The Queen," "The Field," and "The Law Times," Bream's Buildings, Chancery Lane, London, E.C.

The wide publishing connection of the firm of Mr. Horace Cox will enable New Subscribers throughout the country to receive their copies of the three publications with the utmost rapidity.

teets who have been more than usually successful. One hesitates, however, to make this last statement without a little qualification. It would be absurd, for instance, to expect a very successful competition architect to advise his younger brethren to go and do likewise. He would add as a rider that it was a terribly anxious and trying time, instead—as the young man generally finds—a most fascinating, if tantalising, one. The young architect—that is, he who is young in years—will nearly always find something to say in favour of competitions, except upon those two or three days—recurring from time to time—after his unsuccessful ventures, which is but a very natural reaction from nights spent in hopeful anticipation of success. It is possible to forgive the hard words he will then use against competitions, assessor's committees, and conditions; it is a passing spasm—a sudden rage that seizes him against the things life offers. He asks for a golden apple, and is presented instead with a curt and cold letter, stating that the committee regret, etc., etc. All this is exasperating to hopeful youth, who, previous to the



"THE HOUSING OF THE DRAMA." THEATRE DE L'OPERA, PARIS.

in view also of the extraordinarily large demand for "Specification" (quarterly), now published, the Proprietors of "The Builders' Journal," "The Architectural Review," and "Specification" beg to announce that they have entered into arrangements whereby their Printers will undertake joint publication.

In future the firm of Mr. Horace Cox, who are the Proprietors of "The Queen,"

Competitions and Competitors.

MUCH has been written upon the evils which accompany public architectural competitions—in other words, the choosing of the architect or architects to whom some proposed building shall be entrusted for its proper carrying out. A literature upon the subject awaits the disinterested inquirer who can bring himself to the arduous task of sifting the evidence for and against competitions. The valuable evidence in favour of competitions would probably come from the youthful portion of the architectural community, and possibly some might be forthcoming from the archi-

result of the competition, had been working down the avenue of life in a flood of sunshine; it has not as yet occurred to him that there is possibly a maggot in the golden apple he asks for. It is well that it hasn't, or the building papers would be strewn even more than they are at the present day with letters from "A Disappointed Competitor," "An Impartial Outsider," "One who Knows," and "One who Intended to Compete." Young hopeful, however, is fairly sane; he seldom indulges like his envious elders in that interesting occupation of endeavouring to explain why the first premiated should be disqualified, nor does he complain of the committee, the assessors and the conditions but in that

general and abusive way already mentioned. It is unfortunately those who have won two or three competitions who write to the building papers under curious nom de plumes—success seems to give them a distorted idea of their abilities. To win once, twice, or even thrice, works them up into an unenviable condition of mind, a frame of mind that argues that there must be a screw loose in the settlement of the award when a competitor who has already won thrice is entirely ignored. He may find that the spirit rather than the letter of the conditions has been adhered to by the winning set of drawings. Then follows, alas! a letter from "One Not Interested." It is appalling, when anyone thinks it over, the number of individuals who write to the building papers having not any interest in the award. It may be laid down as a general rule that, whatever may be the result of a competition disinterested philanthropists are on the increase at these times.

G. LL. M.

Saved from the Despoiler.

So the Crystal Palace is to be preserved. The very real danger—amounting almost to certainty, we were told—which existed a few weeks ago, that unless the Palace was either purchased or subsidised it would be razed to the ground, and the site whereon it stands inherited by the suburban builder, has now been removed. Negotiations for the purchase of the Palace have been carried so far that the safety of the great structure, with the beautiful grounds is definitely announced. The well-known schools of engineering, Art, and music, which since the foundation of the Palace have formed not the least important and successful features of the institution, will, we are told, be maintained, and the abundant facilities of tuition they have afforded, be extended. The Art treasures at the Crystal Palace will, of course, remain, and though the demolition of the huge building could scarcely be mourned as the loss of a great triumph in Architecture, it is eminently satisfactory that it has escaped its threatened doom. Whatever the Crystal Palace is not, architecturally, it still is a monument of engineering skill, not without grandeur, an important art centre, and withal a useful and convenient building. "Nowhere in England is there such a fine collection of casts from foreign antiques, many of them the only casts ever taken, and of curious mediæval monuments, artistic and architectural. Some of these, spread about the dim and seldom visited side courts, would repay an artist for weeks of study." Thus writes the author of "John Halifax, Gentleman." And it would be a matter of deepest regret if the collection were distributed. On the other hand, may we not hope now that these casts from the antique will be improved and increased, that among other improvements which are to take place, the Palace may be more fully developed as an art centre? The grounds in which the Crystal Palace stands, too, are not to be lightly sacrificed. The situation is one of the finest around London—in fact, only Hampstead Heath is comparable with it. From the grounds of the Palace, spacious and beautiful in themselves, a long vista of fair Surrey opens up, with its blue hills rising away in the background. The suburban builder has of late been viewing the scene prosaically, gleefully anticipating the day when he should hold high revel in putting up rows of "all those desirable and leasehold tenements,"—semi-detached villas. All around the Palace one notices new encroachments by the builder, and it is a relief to know that such a magnificent open space as the Crystal Palace grounds is not yet to be given over to dull and drab suburbanism.

H. C.

AN ARCHITECT'S EXPERIENCES :

PROFESSIONAL, ARTISTIC, AND THEATRICAL.

By ALFRED DARBYSHIRE, F.S.A., F.R.I.B.A.

IT is rarely that architects give their reminiscences to the world in book form; and when they are moved to do so, it is generally in posthumously published works, and for the vindication of their life work that they are led to become authors. Thus, Sir Gilbert Scott closed his career by such a book, which reads in parts like an apology for the things he did to our cathedrals in an unexampled professional practice in restoration works. But Mr. Darbyshire, who has been in architectural practice in Manchester since 1862, has written a work of more than professional interest. He has known many people in his time whose names are now public property, and his pages contain interesting gossip about them, in between a racy *résumé* of his own career. Mr. Darbyshire comes of a Quaker family. He was born at Salford, by Manchester, in 1839, and was early articled to a firm of Manchester architects, whose two constituent partners, Mr. P. B. Ally and Mr. Richard Lane, provided the somewhat humorous style of *Lane and Ally* to the business undertaking. In 1862 he set up for himself, and early-secured commissions, his first being works at Lyme Hall, near Stockport, in Cheshire. He then entered into a competition for an intended Town Hall at Pendleton, and, although an enthusiastic lover of Gothic, prepared, under the advice of friends, two sets of drawings, one in the style of his choice and another in a Classic style. The result was something of a disappointment from the artistic standpoint, although from the purely professional or commercial point of view it left little to be desired. In point of fact, the Gothic design was rejected, and the Classical one secured the commission. Since that eminently satisfactory result of his first competition, he has won many more, early following up his initial success with the striking achievement, for

A YOUNG PROFESSIONAL MAN,

of securing the first premium in the Municipal Abattoirs' Competition organised by the Corporation of Manchester. That was in 1870, and he not only had the satisfaction of erecting those, among the first public abattoirs in the country, but that also of having his design copied extensively on the Continent and at Cardiff. It is true that only in the latter instance did he receive any fee for the copying of his Manchester design; but there are many professional brethren who have had their works pirated without even one little fee resulting, and so when Mr. Darbyshire laments the lot of the architect, we may take it that here is a successful professional man lamenting the lot, not of himself, but of the weaker brethren.

Mr. Darbyshire early became acquainted with the late Mr. Calvert, of the Prince's Theatre, Manchester, and the acquaintance, which was formed at an amateur performance, resulted eventually in a long series of architectural and decorative works being carried out for that manager, and incidentally to a wide acquaintance being formed with theatrical folk. This extensive acquaintance includes Sir Henry Irving, who, years ago, was a member of the stock company of the T.R., Manchester. Indeed, Sir Henry is one of Mr. Darbyshire's most intimate friends. When the actor opened his management at the Lyceum Theatre, in London, in the beginning of 1879, it was Mr. Darbyshire who redecorated the house for him. He has a diverting anecdote on page 237 of a manager's

"An Architect's Experiences: Professional, Artistic and Theatrical." By Alfred Darbyshire, F.S.A., F.R.I.B.A. Published by J. E. Cornish, Manchester.

difficulties, in connection with Sir Henry Irving's production of "Faust."

Indeed, the theatrical experiences of this versatile architect are many and varied. Prominent in his professional practice are the re-casting of the Prince's Theatre, Manchester, the building of the Comedy Theatre in the same city, and the building of a new theatre at Exeter, to take the place of the one burned down with so fearful a loss of life some twelve years since. This last he planned in consultation with Sir Henry Irving, on what was known as the "Irving-Darbyshire Safety Plan."

Fired as a boy with a love of Art, by a visit to the Great Exhibition of 1851, and by the Art Treasures Exhibition of 1857 at Manchester, Mr. Darbyshire has always treasured a love for the beautiful, and has known more or less intimately the leading artists of the mid-Victorian era. He has an interesting story to tell of G. D. Leslie, Fred Walker, J. P. Hodgson, and H. Stacey Marks, who were staying at Sir William Agnew's house, "Summer Hill," Pendleton.

In the Manchester Exhibition of 1887 Mr. Darbyshire executed in

THE WELL-REMEMBERED REPLICA

of "Old Manchester and Salford" which contributed to the success of that show so very greatly, nearly £1500 having been taken in coppers from the visitors for the privilege of ascending the reproduction of the old parish church tower of Manchester. Exhibitions are not invariably commercial successes, and although they may be visited by huge crowds, the immense sums incurred in management soon take away profits, as guarantees know to their cost. Although the Great Exhibition of 1851 was visited by over six million persons, the net profits only reached £186,000. The gross receipts were £515,000, the expenses £332,000. The succeeding Exhibition of 1862 was visited by more than 6,100,000 persons, but the expenses were so enormous that no available surplus remained; while at the end of 1874 it was discovered that while the visitors in the four years amounted to 2,750,000, the net loss was £14,000. In view of these figures for London, Manchester did very well with a "handsome surplus."

With this we must leave a book which brightly reflects the catholic sympathies of a cheery architect and man of the world.

C. G. H.

NEW ROYAL ACADEMICIANS.

AT the Royal Academy on Wednesday week Mr. Benjamin Williams Leader and Mr. John Seymour Lucas were selected as Academicians, and Mr. Charles Napier Hemy as Associate. The many admirers of Mr. B. W. Leader's pictures will rejoice in the honour that has been conferred upon him. The new R.A., who will shortly enter his 67th year, is essentially a popular painter of popular subjects. His first picture—"Cottage Children Blowing Bubbles"—was exhibited so long ago as 1854, and brought him £50. He was elected an A.R.A. in 1883, and his honours include a gold medal from the Paris Exhibition of 1889, and the decoration of a Chevalier of the Legion of Honour. The other new Royal Academician—Mr. J. S. Lucas—has not yet completed his 50th year. Just as Mr. Leader has given most attention to mountain scenery and rural subjects, so Mr. Lucas has sought his studies in the domain of history. Probably his most notable achievements are his pictures portraying the "Surrender of Don Pedro de Valdez to Drake on board the 'Revenge,'" "Peter the Great at Deptford," and "The Call to Arms." Mr. Lucas became an Associate in 1886. His works have won him considerable popularity abroad. Mr. C. Napier Henry, the new Associate, has long been recognised as a distinguished marine painter, and "Pilchards," his picture at the last Academy Exhibition, was considered of sufficient merit to secure the distinction now conferred upon him.

THE HOUSING OF THE DRAMA.*

WITH SPECIAL REFERENCE TO SUBSCRIPTION AND ENDOWED THEATRES.

BY EDWIN O. SACHS.

Author of "Modern Opera Houses and Theatres," &c.

(Continued from page 6.)

HAVING indicated what spirit prevails for the original conception of Municipal and Subscription and Endowed theatres on the one hand, and Court and Government theatres on the other, let me briefly recapitulate and say that the Municipal theatre is intended to provide such suitable housing for the Drama as can be afforded by the community; the Subscription or Endowed theatres to the extent of the provision which can be offered by its donors; while Court and Government theatres

footsteps were often little else than mere imitators, void of the true intelligent feeling which is the characteristic of their master. To narrate an anecdote which illustrates how the true feeling for the suitable "Housing of the Drama" can also be misinterpreted. A certain actor-manager, so the late Mr. Phipps told me, going to the extreme, wished his vestibule to have a sacred appearance. "We should feel inclined to fall on our knees when we approach this shrine of the Drama," so said that manager. It is true that this actor-manager changed his mind afterwards, and wished to have his vestibule majestic. "Plenty of red, gold, and marble," he said; "we should be inspired by the awe of the Drama and its majestic power." Well, he changed his mind again, he thought of the Drama in its homeliest spirit, as the friend of the tired mortal, and that vestibule was to entice the wanderer into homely surroundings. So you see how this actor-manager successively misinterpreted the requirements of a theatre, though well-intentioned, and, as architects, you will, I am sure, pity the *confrère* who was instructed to

also a genuine interest in architectural work, with the result that the play finds a worthy home amid appropriate and dignified surroundings.

Now I have frequently said that the London playhouse is generally placed in the hands of architects who are merely good planners, good constructors, and business men, with a qualification of being able to provide for a maximum audience at a minimum outlay. With but few exceptions, it is of little importance if the so-called theatrical architect has the true feeling of Art, if he can only secure the latest trick of the plaster manufacturer to catch popular taste. What counts more than any repute for architectural design is that the architect should have the talents and facilities of a financial agent, and be able to find money for the enterprise. Why, the late Mr. Phipps told me (and I had a great admiration for Mr. Phipps' powers of designing) that he would have frightened away his clients if he spoke of Architecture with a big "A." They would have thought him expensive, a faddist, or anything else but what they wanted. He purposely



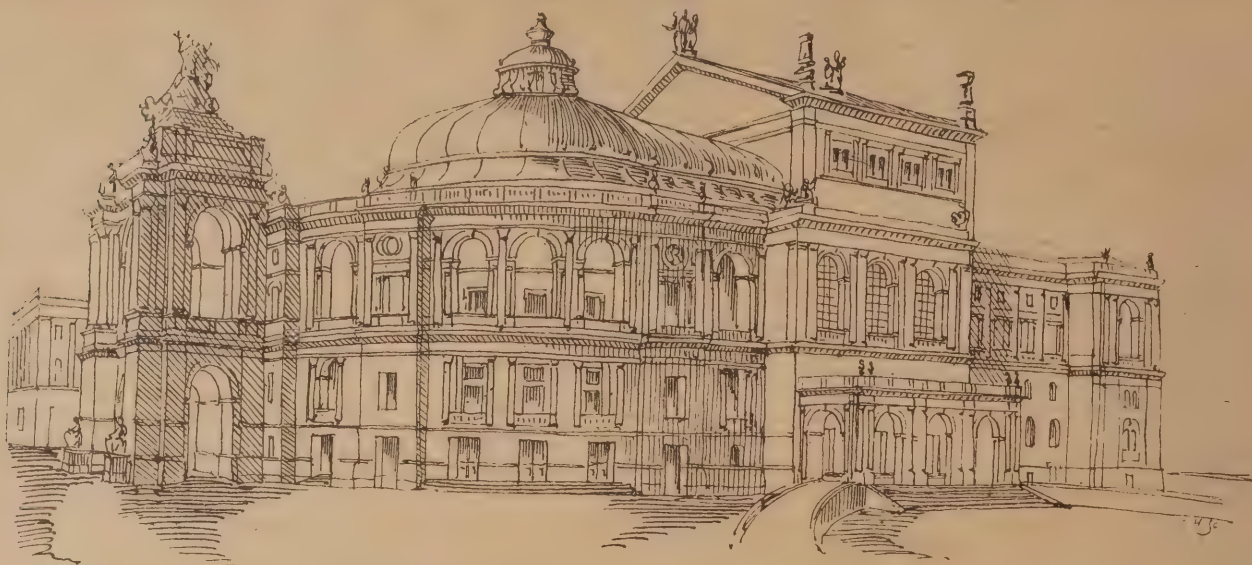
"THE HOUSING OF THE DRAMA." SUBSCRIPTION THEATRE AT STRATFORD-ON-AVON.

are erected in a manner commensurate with the larger financial resources of the individual Government or monarch, irrespective of what is due to dramatic art. With the private theatre, I would here remind you that we found the "Housing of the Drama" to be simply a question of £ s. d. In the private theatre we have only a problem of economy to solve, and the only regard that has to be given to the architectural rendering is whether the individual holder or lessee considers that his audience requires a little more York stone, Art in its best meaning, a semblance of Art, or the gaudy treatment of an advertisement. I am glad to say that we have a few actors and managers who, though risking their money, have thought of the suitable "Housing of the Drama," independently of the absolute restrictions of £ s. d. Take Mr. Darbyshire's charming record of his architectural experiences, and we very soon recognise the spirit in which Sir Henry Irving first put the old Lyceum in order in 1878. But Sir Henry Irving has been the exception, and those who followed in his

solve the three problems in turn, and then a combination of all three. I may as well say that the architect did not solve the problem. And if you wish to enjoy the beautiful plays which are presented at the theatre I am referring to, mind you go in by the pit door, or the stage door, or a window if no door is available, but do not venture through that sacred, majestic, and homely vestibule, otherwise it will spoil your evening. But it is not often that we have such an employer as Sir Henry Irving, nor even the species of actor-manager whose vestibule I have just referred to. As a rule, we have to deal with men to whom the appearance of the playhouse is a matter of minor importance as long as there is the customary supply of velvet and gilding in the auditorium. And they are quite right, for with few exceptions the London manager and his provincial colleague have only to cater for the pleasure of a sensation-seeker practically devoid of any feeling for Architecture, and with little reverence for dramatic art. The British public cares very little for Architecture, and the Drama is merely classed as an entertainment. It is otherwise outside our isles. With a genuine reverence for dramatic art, there is

avoided trying even to make his façades or decorations presentable for fear of, being thought an Art architect and losing his theatrical *clientèle*. Of the many private playhouses that he designed, and I think I know them all, Her Majesty's Theatre is the only one where there has been any serious attempt made at Architecture, and this is mainly due to Mr. Tree having indicated that he wished to have something above the commonplace. Of private theatres by other so-called "theatrical architects," I regret that I do not know of any that can boast of architectural pretensions. At present, the only theatre that deserves serious attention on account of its rendering is quite a small one at Cambridge, which, in spite of most unsuitable surroundings, has a charming interior. This is the work of Mr. Rüntz, who does not figure as a "distinguished theatrical architect," but who, among other important commissions, holds several for playhouses. His new playhouse at Peckham promises to show an architectural rendering of a higher order. He is bold enough to risk losing his theatrical client by giving us a building of some importance. Mr. Darbyshire, by-the-bye, has

* A paper read before the Royal Institute of British Architects on February 7th.



"THE HOUSING OF THE DRAMA." MUNICIPAL THEATRE, ODESSA.

conceived some excellent plans on true Art lines in connection with the Variety Theatre, which we must not, however, refer to when speaking of the Drama; Messrs. Colcutt, D'Oyly Carte and Holloway, similarly did excellent work at what is now the Palace Theatres of Varieties. But as far as the Drama is concerned, the architectural rendering, as a rule, is quite nondescript.

Now abroad the architect of a playhouse has to be an architect in the very highest sense of the term, and very rightly so, too. Where a municipal monument, the gift of a subscriber, or a Court or Government theatre has to be dealt with on the lines indicated, it is only natural that every effort should be made to obtain a good building; and even in the private theatre, as will be seen from the "New" Theatre at Berlin, the necessity for catering for people who take interest in Architecture and respect the Drama compels the architect to be something more than a mere constructor. Why the building of a suitable home for the Drama is one of the most difficult tasks that an architect can undertake, and calls for a man endowed with a pure and true spirit of the architectural vocation. His work demands the largest share of real beauty, and the most careful blending of Architecture, sculpture, and painting, whilst the complicated practical requirements are at the same time hostile to all his efforts at perfection in design. There is, in fact, no class of architectural work which puts forward more numerous, complex, and essentially technical demands, and requires at the same time that the rendering shall not fall below the highest standard of taste than that of the theatre.

But now let us look at examples of playhouses erected under the different circumstances I have indicated. We will commence with the private theatre. But let us simply pass over the eyesores which have been erected in such numbers, and only take the very pick of what we have in private theatres in the Metropolis. Now there is no doubt that, speaking of the West End, the most recent playhouse, Her Majesty's, in the Haymarket, just referred to, is far and away the best example of recent theatre Architecture, both in plan and in architectural rendering; and this is due, as I have said, to a great extent, to the liberal spirit of the lessee, and also to the peculiar facilities of the site. In Her Majesty's Theatre, the late Mr. Phipps surpassed all his former efforts, and furnished London with a playhouse so admirable in the arrangement that it will long be considered a model of its kind. And yet, no one who does not recognise the posters and the lighting would point out this building as a home of the Drama. Its exterior, excepting for its many doors, would be just as suitable for a suite of modern flats or a hotel. And in the interior,

features, but few are characteristic of a playhouse; nor does the decoration show breadth of design. All that the practical planner could have done has been done in this building to fulfil the requirements of the management, with due regard to economy; but that is the greatest praise we can give it, and in that respect alone it is a model. To a certain extent you could almost say the same of Daly's Theatre in Cranbourne Street, which has many advantages of plan, construction, and equipment; but again, it can surely not be considered as a suitable home for a revered Art. Her Majesty's Theatre stands head and shoulders above the other West End playhouses. Daly's comes next, then follow a certain number of playhouses which are somewhat above the average, like the Duke of York's Theatre, the Shaftesbury, and the Lyric; but surely none of these can in any way be confused with what we would term a suitable home for the Drama. If we glance round the suburban theatres, we find a similar state of affairs. No doubt we have many theatres practically planned, but one building alone is likely to stand out among its contemporaries, and that one, which, as I have already indicated, is yet in course of construction, is the Peckham Theatre, designed by Mr. Runtz. It is, as I have pointed out, a theatre by the same architect which stands out far above the average provincial playhouse. I am speaking of the small example at Cambridge, known as the New Theatre. The Wolverhampton Theatre of the late Mr. Phipps comes next, and though of broad conception in plan, I am afraid his architectural rendering makes it a bad second.

After these examples of our private theatres, let us turn to the Continental playhouses, which are built under almost identical conditions, i.e., those of a financial enterprise, with the one exception that the general public demand that the play should be suitably housed with some regard for Architecture. No doubt financial reasons here also compel the architect to limit his expenditure in the architectural rendering; but in conception, in outline, and in planning some of these buildings take a very high position, and even in their architectural treatment merit considerable attention. The New Theatre at Berlin, which only seats an audience of 800, is a good instance of a playhouse which has been placed on an awkward site, and yet in every way accords with the requirements of the Drama. The Lessing Theatre, in the same city, is another instance, and so is the New Theatre at Munich. Other instances can be cited, but as I have only selected the best examples of metropolitan and provincial theatres in England, so do I limit myself to naming a few examples of the first order from the Continent. Everywhere, however, both in England, where we have no demand for good

Architecture, and no reverence for the Drama, and on the Continent, where both demand and reverence exist, it is evident in the case of the private institution that the architect is cramped, and this even where the excellence of his intentions is obvious. In the rendering of a private theatre it seems impossible to give the building the full dignity it deserves with the limited funds of private enterprise.

Let us now turn to examples of Municipal, Subscription and Endowed theatres, irrespective of their actual origin by gift, the subscription of ratepayers, or otherwise, and independent, also, of the fact that the theatre may or may not be used sometimes for the presentation of opera and other forms of entertainment. To begin with, we have at Stratford-on-Avon what I will term a "Subscription" theatre, which in every way accords with the special requirements of being a monument to a great poet, and a home for the Drama with which he was associated. It is true that even here the funds were not lavish, but there were none of the cares of a private enterprise, and none of the usual difficulties of site. The £20,000 spent on this memorial may seem a small figure, but it amply sufficed to cover the requirements, and give accommodation to the small audience for which it is intended. A visit to this theatre is most pleasant, both for the admirers of the Drama and for the architect, and for once we find that every possible care has been taken to invest a building with due dignity, and with due regard to its association. Now on the same basis we find many interesting playhouses abroad. There has been no question of cramping the site and the design to suit the exigencies of commercial enterprise. The endeavour has been to provide the locality with a suitable home for the Drama, and at the same time to erect a monument which shall become the pride of the community to which it belongs. Take Heinrich Seeling's three Municipal theatres at Hallé, Bromberg, and Rostock — towns with small populations. Consider the sites and the general conception. Then look at the small Municipal theatres of Salzburg in Austria, erected by Messrs. Fellner and Helmer; or their Municipal theatre at Zurich, or any other of the Municipal, Subscription, or Endowed theatres. Remember, too, the beautiful monuments, such as the Amsterdam Subscription Theatre, with regard to which I should, however, emphasise that it is devoted alike to opera and drama; the Prague Theatre, and among others, going as far south as Palermo in Italy, or as far east as Nishni-Novgorod and Tiflis in Russia, or stepping over the boundary and going to that "barbarous" country of Siberia, we find that even Irkutsk has also its beautiful municipal establishment, which in every way accords with the dignity of the Drama.

(To be continued.)

London Street Architecture.

By H. W. BREWER.

SOME of the inhabitants of Stratford Place, and all those who are interested in the street architecture of London, must regret to hear, writes Mr. H. W. Brewer in the *Daily Graphic*, that there is a proposal to break through the classical outlines of the place by heightening one of the houses, an operation which will destroy, it is said, its symmetrical treatment, and will establish a precedent which will completely abolish its architectural character.

STRATFORD PLACE

consists of a short street which runs out of Oxford Street northward, and terminates in a square court, the north side of which is occupied by a mansion, which certainly presents one of the handsomest classical façades in London. The whole was erected at the expense of Edward Stratford, second Lord Aldborough, in the year 1775, from the design of the celebrated Adam Brothers. What is very remarkable about it is this—that the street, square, and mansion at the end of it are all incorporated in one design in such a way that the façade of the mansion forms a centre of the composition, and the sides of the street wings at right angles to it: connecting the façade with its wings are colonnades. The sides of the houses which abut upon Oxford Street are adorned with pilasters, and two square projections, like gate-posts, are terminated with stone statues of lions. As originally built, there were probably iron gates and screens at this point, and there was a monument in the centre of the square. When the whole was complete, as it came from the hands of its talented architects, it must certainly have been extremely handsome, and even at the present time it is

ONE OF THE BEST EXAMPLES OF STREET ARCHITECTURE

in the Metropolis. Unfortunately, however, some alterations have been made at various times which have robbed it of a good deal of its character. The monument in the centre of the square was removed in 1802, and the south-east portion of the composition, which faces Oxford Street, has been rebuilt upon a different design, so that the whole symmetry of the Oxford Street approach is lost. The ground-floor stories have been altered; those which were of brick originally have been plastered over, and some which were of stone have been painted. Why on earth, in London,

cannot people be persuaded to follow some general scheme in the colouring of their houses? Why will one man paint his house a bilious butter colour, while his next-door neighbour paints his in imitation of damson jam, and next door but one a sickly green? Although in Stratford Place we do not find all those varieties, yet there is enough and to spare, and they have done a great deal towards breaking up the dignified symmetry of the design. Paint, however, can be scraped off, but the addition of a story to a house which forms a portion of a classical composition is a far more serious matter. The house (or houses) proposed to be heightened form a portion of the side wings, and we leave readers to imagine what the result of such an alteration would be. Of course, "picturesque irregularity" in a street may be interesting and striking.

THE THREE MOST MAGNIFICENT STREETS

in Europe—the Maximilian's Strasse at Augsburg, the great street at Landshut, and the High Street at Oxford—are all thoroughly irregular, but the buildings which border them are of almost colossal dimensions. At Augsburg and Landshut, for instance, there are great towers 360ft. and 420ft. high, and in the former street there are immense fountains with basins 60ft. in diameter. At Oxford, the fronts of the colleges are long enough to give grand architectural character to the thoroughfare which they border, but scarcely any of our London streets are dignified enough to stand an irregular treatment without looking shabby or ill-arranged. Moreover, if the buildings of a street are from the first designed in a symmetrical manner, any additions which do not follow the original scheme are certain to produce a patchwork effect. We see this in Regent Street, which was the best planned thoroughfare in London, but which from carelessly designed additions has lost its regular horizontal sky-line, and is now neither one thing nor the other; in fact, it is rapidly becoming a mere patchwork jumble! As Stratford Place is about the only symmetrically arranged street in London, it is certainly advisable to retain it in its present condition, although individuals may suffer some inconvenience.

THE tower and nave of Acton Church, Nantwich, have just been completely restored at a cost of nearly £5000. The chancel of the church is being restored by Lord Tollemache, and Mr. H. J. Tollemache, M.P., has undertaken to erect an organ-loft at a cost of £600.

WESTMINSTER IMPROVEMENT SCHEME.

FEW residents in this neighbourhood (says Mr. C. W. Furze, writing to the *Times* from 1, Abbey Garden, Westminster,) can have taken interest in the surroundings of the Houses of Parliament and the Abbey without foreseeing great structural improvements. A good beginning has been made, but more must follow. Already one side of Parliament Street is in the hands of the destroyer. A terrible eyesore has been removed from Palace Yard, and Henry VII.'s Chapel and the beautiful Chapter House have been opened out with the happiest effect. The eye moves onward to the south. Speaking for myself, I have for several years predicted the abolition of the present houses in Abingdon Street and the substitution of finer buildings, withdrawn further westward, and more nearly approaching the old fourteenth century wall which incloses the Abbey garden, or, as Old Westminsters still call it, the College garden. This change would give a wider and nobler street running in front of the House of Lords, and a site obviously appropriate for Government or other public offices, such as the County Council may not improbably require. Next in importance to Abingdon Street is Millbank Street. That the patience of Londoners, who value their river, has borne so long this obvious interruption of the Victoria Embankment, the finest improvement in London during the last fifty years, is simply a marvel. But how do the promoters of the new scheme propose to deal with these two streets? Abingdon Street is clearly a site upon which Parliament has the first and, I venture to say, the exclusive claim. Its splendid position, its contiguity to the House of Lords and the Victoria Tower, the opportunity it gives for the creation, not only of dignified and beautiful buildings worthy of their august surroundings, but of offices of paramount importance in satisfying national requirements, seems to me an invincible argument for preventing its sliding into the hands of an irresponsible syndicate. Again, a few years ago, a scheme was put forward by a member of the late Government for building an annexe to the cloisters of the Abbey for the purpose of giving ampler space for the graves and monuments of great men. So far as I know the mind of my colleagues in the Chapter, we have no wish to make any addition to the Abbey, although some of us might wish to transfer to an appropriate spot some questionable masses of marble which now



"THE HOUSING OF THE DRAMA." MUNICIPAL THEATRE, AMSTERDAM.

cumber the ground. But, whatever individuals may desire or deprecate, we are not so short-sighted as to believe that the project is dead. The question, I believe, is only suspended. Mr. Shaw Lefevre's plan of making the extension on the south-east side, in the direction of the Jewell Tower and the north corner of Abingdon Street, is thought by many to be the likeliest, if not the only possible, line such a building could take. Now, is Parliament likely to part with a site, available for such national uses as the two I have indicated, to a number of private gentlemen, however honourable, who must in the nature of things see to dividends and rents in order to recoup themselves and other investors for the expenditure of millions in their speculation? Not only would the nation disfranchise itself of its just prerogative, but, in spite of any stringent conditions, Parliament could not guarantee to London a security from another high and narrow Victoria Street, or another Carlton Hotel and theatre, or a block of vulgar residential flats. Then, passing to Millbank Street, it needs no trained artistic eye to see the certain effect of extending the Victoria Embankment from the south end of the

viduals with the grant of compulsory powers of destruction and construction. The national and metropolitan value of these sites vindicates the unique claim of a responsible Parliament to deal with them. Patriotism and business may be combined; but we may not forget the reasonable distinction drawn by an acute observer of Republican Rome—

*Privatus illis census erat brevis,
Commune magnum.*

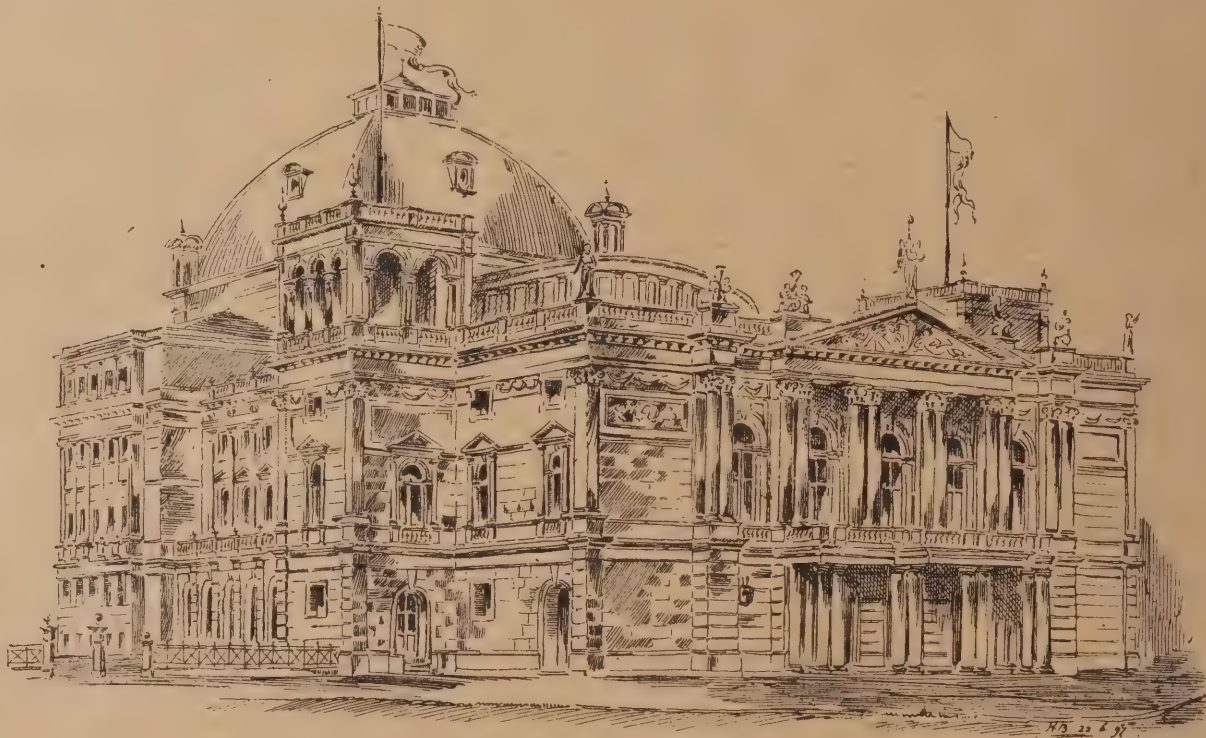
Nor is Mr. Justin McCarthy's criticism in his last volume without point in an age of financial speculation, where he says of the "adventurers" who associated themselves with Sir Walter Raleigh:—"There was a good deal of practical genius in some of Raleigh's compatriots and colleagues, and, eager as they were to extend the Empire and the glory of England, they were not unwilling at the same time to make money out of the enterprise."

THE recently-opened Beech Grove Congregational Church at Newcastle-on-Tyne has been built by Mr. G. H. Mauchlen, contractor, from designs by Mr. Stephen Piper, architect, Newcastle.

ARCHITECT'S FEES.

AN INTERESTING LAW CASE.

A DECISION of some importance to architects and surveyors has recently been given by Mr. Charles Barry, of Westminster, in the action of Keats v. Boger and others. The plaintiff, an architect at Plymouth, had acted since 1871 as architect and surveyor of certain estates of very considerable extent in Plymouth, belonging to the trustees of the will of Thomas Bewes, deceased. He also acted in a similar capacity for Admiral Sir Michael Seymour, owner of another large estate in the same town. These estates were intended to be gradually developed and sold for building purposes, and the plaintiff accordingly surveyed, laid out, and sold one portion after another of the estates as the time appeared fitting. Up to 1884, at the suggestion of Sir Michael Seymour and Mr. C. T. Bewes (the then solicitor to both estates), the plaintiff's remuneration was altered to a commission of £5 per cent. on the purchase money of all land sold, such commission covering not only



"THE HOUSING OF THE DRAMA." PRIVATE THEATRE, BERLIN.

Victoria Garden (so generously given to the public by the late patriotic Mr. W. H. Smith) till it meets the Embankment in Grosvenor Road. With a clear, unimpeded frontage to the river and a broad street on its left bank, the view from a new Lambeth Bridge, looking down the Thames, with the Houses of Parliament on the left and Lambeth Palace on the right, would be a noble prospect, second only, if second at all, to Waterloo Bridge and Somerset House. But what does the scheme of these gentlemen propose? Not any real extension of the Victoria Embankment, as we have hitherto understood the Embankment to mean, open to the roadway, but a new block of buildings to be erected between the embanked river and the roadway on the west. We are not in love with Millbank Street as it is, but it does not block the riverside more than this proposed erection will do. Messrs. Mowlem and Burl's granite wharf, and the red sails of the lighters, and the barges unloading their not unpicturesque burdens of hay and straw, which now fascinate the æsthetic artist's eye, would be preferable to such modern dwelling-houses as the syndicate have coloured in their plan. My contention is that Abingdon Street and Millbank Street should not be intrusted to any set of private indi-

viduals with the grant of compulsory powers of destruction and construction. The national and metropolitan value of these sites vindicates the unique claim of a responsible Parliament to deal with them. Patriotism and business may be combined; but we may not forget the reasonable distinction drawn by an acute observer of Republican Rome—

THE demolition of some buildings in Church Street, Sheffield, has brought to light an interesting old ceiling. It was concealed by a false roof. It appears to represent a firmament, the stars of gold being spangled upon blue sky. Unfortunately, as it was in plaster, it was impossible entirely to preserve it.

IN addition to an undertaking on the part of the Office of Woods to make several sections of roads in the Forest of Dean, at a cost of about £10,000, comes a further proposal, also from the Crown officer, for making a main road from Lydbrook to Lydney, which would take a course right through the heart of the forest, and which, it is estimated, will cost another £10,000. The distance is about ten miles.

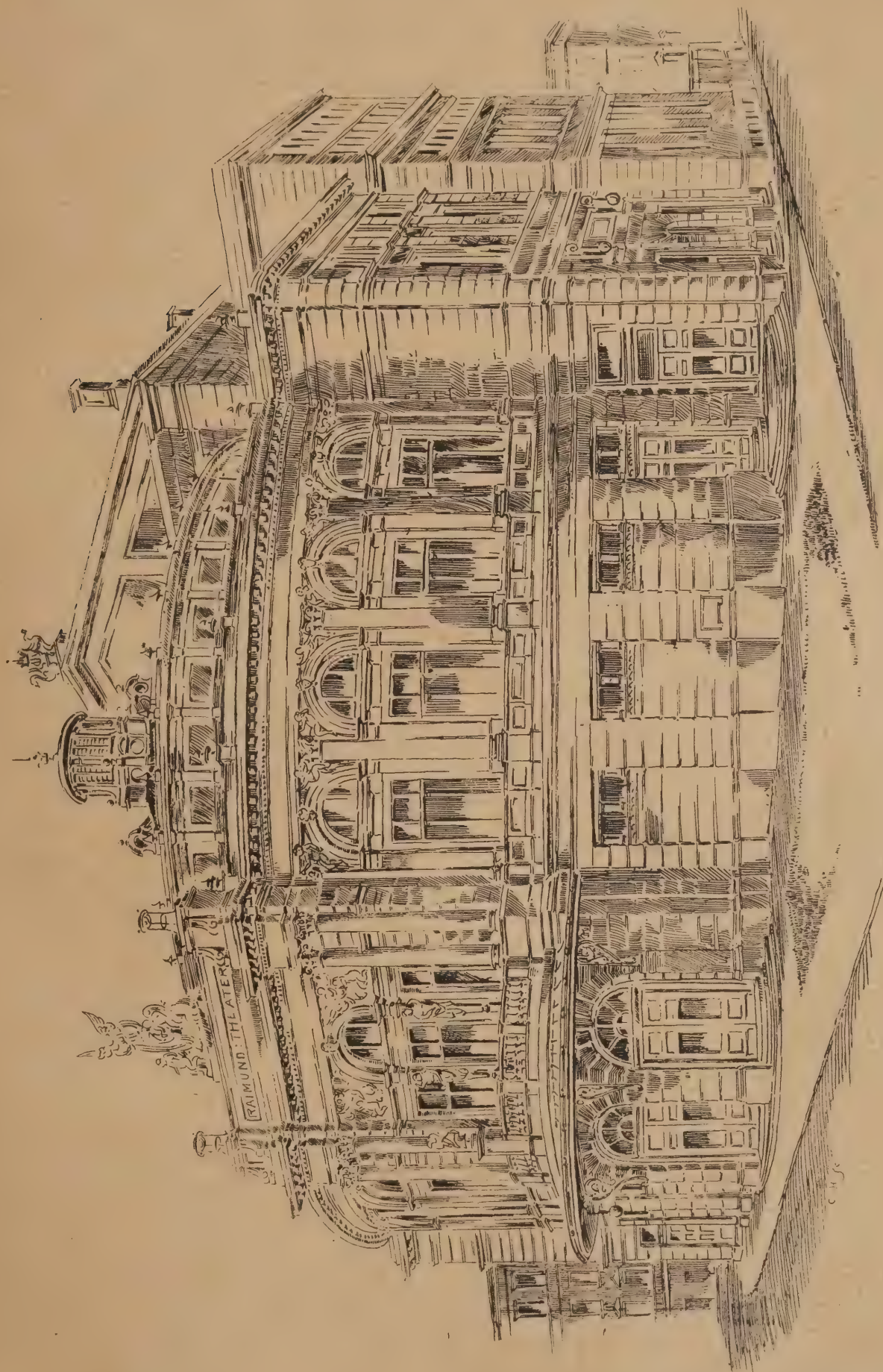
IN the Kettering, Wellingborough, and Rushden district the Midland Railway Company is about to make considerable alterations. At the first-named town the enlargement and improvement of the station is fast approaching completion, and now the Company has turned attention to Rushden. The sum of £7000 is to be spent on enlarging the accommodation, and workmen are now engaged in making the station double its present size. There is to be an up and down platform, additional sidings, &c. At Wellingborough the Company have had plans prepared for a new station,

plaintiff's services in the actual sale of the land, but also all his preliminary work of surveying, laying out, road-making, and other work necessary to fit the land for the market. In 1885 this commission system was adopted by defendants, the trustees of the Bewes Estate, also, and until 1891 the new arrangement was acted upon by both estates. In the latter year, however, plaintiff and the then solicitors of the Bewes Estate did not agree as to the course to be pursued as to the sale of a piece of land to the Plymouth and Devonport Railway Company, and, after some rather unfriendly correspondence, the solicitors acting on behalf of the defendants gave the plaintiff notice that his services would be no longer required for the Bewes Estate. At this time he had done a quantity of the necessary preliminary work for preparing large portions of the estates for sale; but, as the sale of these portions was not yet effected, he had received no remuneration in any shape for this work. Plaintiff, after sending in a claim, which was repudiated by the defendants, and after considerable fruitless correspondence, commenced an action, claiming as damages for improper dismissal the commission of £5 per cent. upon the whole estates, which he could in due course have sold, less an allowance for the

further work he would have had to do to effect the sales and for the time it would have taken to dispose of all the estates. The action came on for trial in London last

heard, plaintiff proved that within a few months of his dismissal defendants had sold large portions of the estates, and that other portions were now in the market, and

with plaintiff at any moment, and that the latter could claim no damages, and was only entitled to be paid for any work actually done by him on lands not yet sold. The arbitrator



"THE HOUSING OF THE DRAMA." PEOPLE'S THEATRE, VIENNA.

November, before Justice Lawrence and a special jury, but, after being opened, it was by consent referred to the arbitration of Mr. Charles Barry. When the case was fully

that defendants were reaping the benefit of his services, while he had received no remuneration.—Defendants contended that they were at liberty to put an end to the arrangement

has now given his award in favour of plaintiff, assessing the amount due to him at £1472 1s. and directing judgment to be entered for this sum.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
February 16th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A CORRESPONDENT sends us the following translation of a paragraph appearing in 'La Stampa':—"In the Church of Ognissanti in Florence a fresco has been discovered representing the entombment. The fresco is divided into two parts, in the lower of which is a representation of the Picta with the Blessed Virgin and other saints at the moment of the deposition in the tomb. In the upper part is represented the Virgin with several members of the Vespucci family, the youngest of these, according to the opinion of competent critics, is Amerigo Vespucci, who gave his name to America. The fresco is by Ghirlandajo, and is one of those which have been described by Vasari."

THE dates for sending in works for the summer exhibition of the Royal Academy have been fixed. The days upon which paintings and drawings will be received at Burlington House are March 25, 26, and 28, and the receiving day for sculpture is March 29. Nothing, however, has yet transpired concerning the possible reduction of the number of works outsiders have up to now been permitted to submit, and for information on this subject exhibitors will probably have to wait until the printed forms and labels for the exhibition are issued on March 1.

In a limited competition for a new Wesleyan chapel, and Sunday school at South Kirkby, near Pontefract, the designs by Mr. Geo. F. Pennington, of Central Chambers, Castleford, have been accepted. The building is to be built of local brick and stone in a free Gothic treatment. The accommodation in the church is for 350, and 200 in the schoolroom. Choir and preacher's vestries are also provided. The cost will be about £1500.

THE new ladies' entrance to the terrace of the House of Commons is a very small affair—a door scarcely half the size of the main entrance to this fashionable summer promenade. Moreover, it is approached from the octagon or outer hall by a very narrow and precipitous staircase, which would assuredly be condemned by a County Council Inspector, if any such officer had authority or jurisdiction in the new Palace of Westminster.

THE report of the fifteenth annual general meeting of the Egypt Exploration Fund (Kegan Paul) may serve, among other things, to remind architects of the good work that is being done by the Society in Egypt. The sensational discovery of papyri at Oxyrhynchus

has somewhat thrown into the shade the services of archaeology performed by the fund in clearing and working out the plan of the buildings on the magnificent site of Deir el Bahari. A part of the temple (the north-west "Hall of Offerings") is now vaulted over; the bas reliefs are being copied; loose blocks are being, when possible, restored to their proper places. Next year the work of preservation is to be continued and crowned by rebuilding the retaining wall to keep off the debris which continually threatens the buildings from the mountain slopes behind. Those who wish to see what has been done will find it in the publication of the Fund "Deir el Bahari," the number of plates in which already exceeds seventy, and there are more to come.

THE painting by Mr. Seymour Lucas, R.A., representing William the Conqueror granting a charter to the Corporation of London has been delivered at the Royal Exchange, and a niche is being prepared for its reception on the north wall. Mr. Ernest's Croft's "Queen Elizabeth opening the Royal Exchange" is being placed in a niche on the south wall, close to "Charles I. demanding the five members," by Mr. S. J. Solomon, A.R.A., which was recently fixed close to the south doors. Five niches are now provided for, but no fewer than eighteen remain to be taken in hand.

A NEW style of workmen's dwelling is being put up in some of the London suburbs, with a view of combining the best features of the flat system with those of the separate dwellings. The houses in question are built with a ground floor and an upper floor, each absolutely self-contained, and each with three rooms and a kitchen. The special feature is the entirely separate access to the upper floor, so that it is quite a distinct dwelling. Houses of this kind have been built before, but the separate access was obtained by an outside staircase, both inconvenient and ugly, and in the present plan the separate access is indoors. The houses are neat-looking and built substantially, but so cheaply that they can be let at 13s. 4d. a week. It is understood that the tenant-in-chief letting the upper part for 8s. compensates himself for his risk by obtaining his own floor for 5s. 4d.

THE fine new home which the Institute of Mechanical Engineers are building for themselves near the Storey Gate of St. James's Park is rapidly approaching completion. The scaffolding is all down, and, as far as the exterior is concerned, little remains to be done beyond putting a few finishing touches to the roof. In many respects the structure out-rides the beautiful headquarters which the Institute of Civil Engineers recently built for themselves hard by in Great George Street. It has a grand sweep of frontage on the park, and contains many spacious rooms, from the windows of which a magnificent view will be obtainable of the ornamental lake and the shrubberies which go to make St. James's the prettiest of all the royal parks.

In no part of London are building operations proceeding with more activity than in Holborn, and this thoroughfare bids fair to present an almost transformed aspect in the course of the next few months. Starting from the Oxford Street end is the handsome pile of red brick buildings now approaching completion for the district post-office for West Central London. The main entrance is on the south side of Holborn, but the premises extend along the little cutting known as Hyde Street into Museum Street, and are 208ft. long by 116ft. wide. The sum of £36,000 is estimated as the cost, in addition to the £30,000 which is said to have been paid to the Duke of Bedford for the site, and the move is necessary, as the former office at the corner of Southampton Row was not only cramped and inconvenient for the requirements of this crowded and busy district, but is itself to be sacrificed in the course of further improvements, signs of which, in hoardings and excavations, are

already beginning around it. Enormous sorting-rooms and all kinds of labour-saving appliances will render this one of the best-equipped adjuncts of St. Martin's-le-Grand. Then, at Holborn Bars, the west side of Furnival's Inn will be absorbed by the extensions of the Prudential Assurance Company, but as the Inn buildings date only from 1818, no antiquarian susceptibilities are wounded.

THE Corporation of London has recently sanctioned a scheme for the extension of the Art Gallery at the Guildhall at an estimated cost of £1600. The plan, which has been prepared by Mr. A. Murray, the City architect, shows the absorption of the ground-floor offices of the Land Tax Commissioners and the Mayor's Court in Guildhall Yard. The newly-acquired space will consist of three rooms connected with each other and lighted with separate skylights, a connection with the existing galleries being made. The total floor area of the additional rooms is about 1700ft. superficial. Accommodation has been arranged for the Mayor's Court officials by utilising the space now occupied by the Land Tax Commission. It has, however, been decided that no steps shall be taken to carry the scheme into effect until equivalent accommodation at the existing rent has been provided in or about the Guildhall for the Tax Commissioners, whom the proposal would displace.

In the City of London Lord Mayor's Court, recently, before Sir Chas. Hall, Q.C., M.P. (Recorder), and a special jury, the case of Hoffman v. Halley was disposed of. It was a claim made by the plaintiff, an architect, to recover £400 odd from the defendant, also an architect, in respect of professional services rendered in connection with certain property at Barnes.—Counsel, in opening the plaintiff's case, said that in October, 1896, the defendant was desirous of erecting six blocks of mansions at Castlenau Estate, Barnes. For this purpose the plaintiff was instructed to prepare plans. At the end of 1896 or the beginning of 1897 plans were prepared, and in respect of that item the plaintiff claimed 2½ per cent. on the estimated cost of the buildings to be erected (£3500). The defendant expressed satisfaction with the plans, and requested the plaintiff to introduce a builder to carry out the work. A builder was introduced, and for that introduction the plaintiff claimed £150. The defendant afterwards saw the plaintiff, and said that he was very sorry, but he had altered his mind as to the class of property he proposed to erect upon the site at Barnes. The plaintiff afterwards prepared fresh plans in respect of the defendant's altered scheme, and, as the builder whom the plaintiff had already introduced refused to take up the matter, the plaintiff was asked to introduce another builder. That he did, and for that service he claimed £240, making altogether the amount claimed in the action £477 10s. The defendant ultimately refused to carry out the transaction, and had not paid the plaintiff for his services.—During counsel's opening the learned judge said that he thought a little temperate advice might be of use in putting an end to the dispute between brother professional men.—A consultation took place between the parties, and Mr. Cock, Q.C., for the defendant, said the suggestion of the learned judge had been accepted by his client. The defendant denied liability, but had agreed to give the plaintiff a certain sum. There would be a verdict for the plaintiff for £100.—The Recorder, in giving judgment, said he was sure the defendant had been well advised.

A VERY important proposal for improving the Marine Promenade has been discussed by the Dover Town Council. Negotiations with the owners and occupiers of a large block of property, a portion of which is in front of the Hotel Burlington, have been completed, and it was suggested that it would be a good opportunity for making a fine town improvement by the Council purchasing part of the site. It is proposed to lay out winter gardens and build bungalows and shops on the remainder. The Improvement Committee of the Council will deal with the matter.

At 133, Oxford Street, there has just been opened a permanent exhibition of Spanish Art, which includes pictures, bronzes, fans, and china. To this Louis Alvarez, director of the National Gallery at Madrid, contributes many delightful works. It includes a masterpiece of Sorolla, which was exhibited last year in the Royal Academy—a Segovian family. The specimens of pottery and china afford a good education in what Spain has produced. The modern bronzes of Spain are faithfully modelled from the crabs, lizards, or lobsters the artist desires to represent. Some of the figures are of great merit.

PASSERS along the Strand may observe that the houses in front of the Hotel Cecil are now in course of demolition. These houses are in a line with the general Strand frontage all along. They stand immediately in front of the hotel, with a narrow roadway at each end of them leading into the large court. An opening has been cleared in the centre of the row and a permanent roadway is to be laid down here giving access to the hotel behind. When this has been done the two narrow roads referred to will be closed, the demolitions completed, and rebuilding commenced. The new structure will complete the quadrangle of the hotel, with a line of shops on the ground level fronting the Strand. The new erection, however, will not occupy the site of the disappearing shops, but will be set 16ft. back, thus constituting another step in the process of the widening of the Strand that has already begun with the setting back of the frontage at the corner of Wellington Street.

For some months past the question of lighting the Victoria Embankment and Westminster and Waterloo Bridges with electric light has been under the consideration of the Highways Committee of the London County Council. In July last they prepared a scheme, which received the approval of the Council, but when they asked for the necessary authority to invite tenders for the work the Bridges Committee brought up a report stating that the Charing Cross and Strand Electricity Supply Corporation had asked permission to lay its mains over Waterloo Bridge, and the Council acceded to the request, "provided that the Corporation do supply light to the lamps on the bridge and maintain them free of cost." The part of the scheme which related to Waterloo Bridge was thus rendered unnecessary, and the whole matter was referred back to the committee for further consideration. The committee have now prepared and presented to the Council a revised scheme, which, in view of the arrangement as to Waterloo Bridge, makes no provision for the lighting of that bridge. They have, however, made provision for the electric lighting of the parapet lamps of the Embankment, for which no provision was made in the scheme previously submitted. Thus, the saving effected by the elimination from the scheme of provision for lighting Waterloo Bridge will be more than counterbalanced by the addition of provision for the parapet lamps. By the revised scheme it is proposed that 144 arc lamps shall be provided. The capital expenditure for the installation will probably be about £25,300, of which over £20,000 would be for the building and equipment of the generating station and the laying of the mains. The revised scheme has been approved by the County Council.

The chief engineer to the London County Council has issued a final certificate of the completion of the Blackwall Tunnel works carried out by Messrs. S. Pearson and Son. The tender from the contractors, as accepted by the Council on Nov. 3, 1891, amounted to £871,000. To this was subsequently added the amount of their contract for forming the raised approach roads, £8952; making the total contract price £879,952. The total sum included £50,000 provision money to be used as might be necessary in providing for extras incidental to the work included in the contract, such as engine and boiler houses for electric lighting, staircases in shafts, electric lighting plant, &c. All these items have been carried

out as well as certain extra works which were not contemplated at the time the contract was let, and which have been ordered or sanctioned during the progress of the work. The final measurement, when all provisions are made for extras and deductions on what may be called the measured bills of quantities, amounts to £830,294, or only £341 above the cost of the contract work as originally contemplated.

THE value of the work for which the provision money was intended under the original contract was £20,277, and the value of the extra works not contemplated under the original contract, but which have been sanctioned by the Council during the progress of the works, was £18,905, making a total expenditure of £869,476. There is, therefore, a balance of £10,476 available for electric plant, wiring, &c., to the credit of the Council on the total contract sum. The engineer has not been able at present to issue a final certificate to the electric lighting contractors, but the sum of £18,000 voted by the Council for the purpose will not, the Bridges Committee state, be exceeded under these contracts and the smaller ones in connection with the work. Adding this £18,000 to the £869,476, the value of the work done by Messrs. Pearson and Son, there is a grand total for all works connected with the construction of the tunnel of £887,476. This, it will be seen, exceeds only by a little over £7520, or by less than 1 per cent, the gross amount of the original contract, and the Council has obtained, in addition to the works contemplated when the contract was let, the extra works as before mentioned.

RECENTLY the Goldsmiths' Institute Building and Architectural Society paid a visit to the public baths and washhouses being erected in New Cross Road for the parish of Deptford. The baths are erected from the designs of Mr. Dinwiddy, F.S.I., of Greenwich and 5, Whitehall, S.W., and form a handsome addition to the buildings of Deptford. The elevation is carried out in red brick and Portland stone of tasteful design, though, being in a narrow road, much of its effect is lost. The grand feature of the building is the first class bath, with a water area of 110ft. by 35ft., and surrounded with a spacious gallery to accommodate spectators to the various entertainments proposed to be held there. There is a second class swimming bath which is 80ft. long by 27ft. wide. Each bath is provided with an arrangement by which the scum that floats on top of the water, can be washed into a scum trough and into the drains, so that the water can be kept free from floating matter. There are over sixty slipper baths in four departments divided into first and second class for men and women. A public washhouse and laundry, containing twenty-three separate washing cubicles and drying horses, together with a smaller establishment laundry, are planned at the rear. The walls throughout are faced with glazed bricks, a blue colour being used to relieve the white for cornices and arches over the openings. The joinery in the baths is of polished pitch pine, the woodwork in the entrance vestibule being executed in teak. The buildings throughout show much careful planning and compactness, both baths having several exits in the case of emergency. An electric light installation has been laid down for lighting the buildings, while the water supply is obtained from a well that has been sunk in the building to the depth of 250ft., the estimated yield of which is 40,000 gallons per hour. The work has been carried out by Mr. Holloway, of Deptford, and the total cost, including the engines, electric lighting, and well plant, amounted to over £37,000. The afternoon's visit terminated by passing a vote of thanks to Mr. Dinwiddy, who conducted the party.

SIR WYKE BATES, President of the Royal Society of British Artists, speaking at the distribution of prizes to the successful students of the Croydon School of Art, said the bogey of the studio assailed the artist on both the spiritual side and the material side. In the one case it dwelt unduly on the motive, and

in the other on the method. Let them not be ashamed of working for a reward. The friezes done on the Parthenon by Phidias were "pot boilers," and the great painters of the Renaissance worked for money. If their work was fine Art it would live, even though they had done their duty to those who depended on them by boiling their pot. The only weapon with which to combat the bogey was sincerity. In defence of English Art he said it was not the rôle of England to play second fiddle, and England had shown itself as strong in poetry and art as in arms and statesmanship and adventure. The two special developments of modern art, landscape and water-colours, had come absolutely from the English school.

At a meeting of the executive committee, held at Whitby, Canon Rawnsley presented the design for the cross to be erected in the churchyard of St. Mary's, which had been prepared by Mr. Hodges, of Hexham. The design is based in scale and treatment upon the four finest specimens of Anglian crosses remaining from Caedmon's time. The design, with the estimate of the stone carvers, Messrs. Beall, of Newcastle, was provisionally accepted.

OLD Etonians will hear with mingled feelings of the decision that has been made to demolish entirely the Sun Inn, which for three centuries has formed a picturesque feature in the Architecture of the High Street. The inn is the property of Eton College, which, however, is not primarily responsible for the demolition; and there are some interesting relics of a past age, some of which it will not be possible to preserve. At a small table, almost outworn with age, George III. used often to dine when he went to college. The old pump bore the date 1742; and on the front wall there was, oddly enough, a plate affixed in the last century by the Sun Insurance Company in the early days of fire-plates. The house possessed some fine arched oaken beams, and the laths were perpendicular and fastened with willow twigs. The new structure, with its mahogany and painted glass, may be a more comfortable hostelry; but it will have lost the old-time associations by which the Sun holds a cherished place in Etonian memories.

It is announced that a determined effort is about to be made to restore the whole of the venerable and historic building of Paisley Abbey. In 1862 the nave, which, though in a somewhat dilapidated state, had been used as a place of worship by the parishioners, was, after considerable expense, repaired and beautified. It is a stately church, and presents architectural features not to be found in other ecclesiastical buildings in Scotland. The transept and choir are partly ruinous. They are roofless with only their walls standing. Shortly before the Reformation the central tower, which had been built by the last Abbot of Paisley, also the last Archbishop of the old church, fell from being insufficiently founded, and crushed in the choir and transept in its fall. The Reformation, when it came, found the monks singing mass in the nave. The present movement to build up the ruinous part of the church has been promoted, in the first instance, by the congregation worshipping in the western portion, who have offered to subscribe £10,000 towards the scheme of restoration. Dr. Rowand Anderson will be the architect.

SIGNOR MARUCCI, the disciple and successor of the great Christian archaeologist, Giovanni Battista de Rossi, has made a very important discovery on the Palatine Hill, Rome. He has found on the wall of a chamber in the palace of Tiberius a "graffito," or rough drawing, with an inscription representing the scene of the Crucifixion of Jesus Christ. There is the cross, surrounded by soldiers, and under each soldier is inscribed his name in Latin. It would appear as if the picture had been the work of a soldier who had been present at the Crucifixion. This discovery recalls the fact that there exist, in the Valley of the Bar, some eight miles north of Grasse, a series of rock carvings reputed to be of even more remote date. They

consist of inscriptions and rude drawings on the rocks, and extend for several miles. They are known as the Maraviglie, and are said to have been executed by the soldiers of Hannibal on their way across the Lower Alps. They represent chiefly figures of men and beasts and implements of war. So great is their number that the stones of which the adjacent village church and houses of Salagrifon are built are covered with them. Some twenty-five years ago they formed the subject of a pamphlet by Dr. Muggeridge—but they are little known even to French archaeologists and travellers, while probably not one person in a thousand of those who visit the Riviera has ever heard of them.

A SMALL but important improvement is in progress in St. James's Park. At the point opposite Buckingham Palace, where the Mall joins the roadway of Constitution Hill, there is an extremely sharp angle, which, with the increase of carriage traffic, has of late years grown more and more dangerous. Concurrently with the repair of the roadway, this angle is now being cut off, and anon an easy curve will take its place. The alteration involves the sacrifice of a corner of the Green Park and the setting back of the railing thereof, but the loss is small, while the gain is very great.

At the eighty-fifth annual meeting of the Newcastle Society of Antiquaries attention was drawn to the wild and romantic ruins of Dunstanburgh Castle, which are in great need of measures being taken for their preservation. Mr. George Reavell, jun., exhibited photographs of the castle, which has probably suffered less in the way of restoration than any other similar edifice in the county. Conversely, it has suffered from neglect and dilapidation in an unusual degree. All through its recorded history it appears to have lain in picturesque ruins, for, though it does not, as far as history goes, receive any mention till the beginning of the fourteenth century, when it belonged to Thomas, Earl of Lancaster, grandson of Henry III., General of the Confederate army which opposed Edward III., and owner also of Pontefract Castle, where he was taken by the King's troops, and beheaded as a traitor, yet in the next century, in 1462, the castle of Dunstanburgh was destroyed by Edward IV. and dismantled, and seems to have remained a noble, if decaying, ruin ever since.

THE latest additions to the Birmingham Corporation Art Gallery include Mr. Onslow Ford's statue of the late Dr. Dale; Mr. J. J. Shannon's portrait of Birmingham's first lord mayor (Sir James Smith); a characteristic example of the well-known French painter, M. Bouguereau, called "Charity;" John Linnell's "The Sheep Drove;" and an early water-colour by Turner, entitled "Salisbury Cathedral." Birmingham is now enjoying an opportunity of studying the Art of Japan, Mr. Michael Tomkinson, of Kidderminster, having lent his beautiful and comprehensive collection to the city for a short time.

RAPID progress is being made with the extension of the City and Southwark electric railway, though whether it will be ready for use by the end of this year, as it was expected to be when begun, may be considered doubtful. About the most awkward work in connection with it is that going on underneath the Church of St. Mary Woolnoth. The tunnelling underneath the river east of London Bridge has not yet been commenced. So self-confident have our engineering moles now become in this subaqueous burrowing that a task which not many years ago would have been regarded as a most venturesome one, is now considered to present no serious difficulty.

THE report presented at the annual meeting of the Yorkshire Archaeological Society, held recently, stated that excavations were carried out at Mount Grace during last summer, under the supervision of Mr. W. H. St. John Hope. A commencement was made at the west-end of the church, where the foundations of the frater were laid bare, and farther to the

south, near the kitchen, part of the monastic bakehouse was discovered. This last was a building of considerable size, 12ft. in diameter. At the east end of the church a cell, forming part of the lesser cloister, was partially excavated. In addition to the excavations, the outer cloister has been thoroughly drained, which adds very much to the comfort of visitors. If there are sufficient subscriptions, excavations will be resumed next summer, when it will be possible to make a complete ground-plan of this ruin, which is unique as being the only Carthusian monastery in this country where the ruins are at all perfect.

THE sole executor of the will of the late Mr. John Loughborough Pearson, Royal Academician, is his son, Mr. Frank Loughborough Pearson, who duly proved the will on Jan. 17 last. The testator, who died on Dec. 11, bequeathed to his "valued and faithful assistant," John Codd, £300, and expressed the hope that his son would retain the services of the said John Codd in his business as an architect. The testator further directs that within six months of his death his son shall purchase two annuities of £60 each for the testator's sister, Sarah (who, a postscript to the will states, has since died), and one for his sister-in-law, Sarah Christian. To his son the testator bequeaths the residue of his estate absolutely. The amount of personalty has been returned at £51,943 10s. 9d.

THE work of Mr. J. MacWhirter, R.A., in its kind, is among the most sought after of any seen at the annual summer exhibitions of Burlington House. This fact alone would render interesting the assemblage of drawings by him, which has just been opened at the Fine Art Society's Gallery, Bond Street. Here we can study drawings which extend over a period of at least ten years, probably longer, thus making it possible to discover whither Mr. MacWhirter is tending. In subject, too, the collection is many-sided. We have presentments of flower-fields, luxuriantly growing on the valley slopes of the Swiss and the Tyrolean Alps—the anemone and the gentian, the corn cockle and the pink, remote wayside chapels in the hill fastnesses of Italy, peeps of Sicily, of Greece, of Constantinople, and of distant Salt Lake City, to say nothing of many vicors in the artist's native land, Scotland. Above all, we here have an opportunity to study the more or less direct impressions of this fine draughtsman; if not his actual sketches, yet the drawings on which many of his widely-known pictures have been founded.

It is more than 60 years since Mr. William Charles Dobson, R.A., whose death at Ventnor is just announced, began his career as an artist. He was born in 1817, studied at the British Museum when he was 14 years of age, entered the Royal Academy School in 1836, and seven years later was appointed to the headmastership of the Government School of Design at Birmingham, a position which he held for only two years. Thenceforward he turned his attention to figure studies, exhibiting regularly at the Royal Academy. Elected an Associate in 1860, he became an Academician 12 years later. Since he had been an honorary retired Academician for some years, there will be no election.

So long ago as 1866 the late Earl of Devon proposed that the fine rood screen at All Saints Church, Kenton, should be restored to something like its ancient beauty, and that the progress of visible decay should be, if possible, checked. The apathy of many of those in residence, however, led to nothing being done, until recently the Right Hon. Lord Courtenay has taken the matter in hand. Mr. Blight Bond, architect, practising in Bristol, has been consulted in the matter, and he obtained an estimate for £316 to carry out the proposed work, by replacing the exquisite groining of the central compartment. More recently, however, Messrs. Hems and Sons have made the offer to the vicar and Lord Courtenay to do precisely the same work for £195.

DURING a great storm the Catholic Church at Minyip, Australia, was canted over to an alarming extent. Heavy props were placed in position to save it collapsing completely, these being forced into the ground by great spikes. A day or two afterwards a great whirlwind came and blew the building in position again. It is now as plump as the day it was built, the spikes holding the props to the ground being drawn by the building righting itself.

BUILDERS and others in Southport are much exercised at the present time on account of the largely enhanced prices asked for leasehold building land in the borough. For many years the rate has been a penny a yard on new leases, but, probably because there is no comparatively little building land available within the borough, the price has recently been advanced to twopence for land beyond the new infirmary, and fourpence even has been demanded for some land belonging to the same estate, but outside the borough boundary. The advances are even more marked in the cases of renewals, eightpence and more being asked in a street well removed from the business centre of the town. In one case the price works out to close upon sixteen pence a yard, and as a consequence the rebuilding of the existing premises will not take place. Sixty years ago land was leased in Lord Street at prices which did not come more than a farthing a yard, that being its full value at the time. Consequently attention is being turned to the question of unearned increment, while at the same time it is feared that the new policy will have a very detrimental effect on the growth of the town.

STATUES with heads that do not rightly belong to them are evidently commoner than it is thought. A correspondent draws attention to another, in the parish church of Yarmouth, Isle of Wight. It is of Sir Richard Holmes, who fought under Prince Rupert, and was Governor of the Isle of Wight from 1666 to 1692. This has the body of Louis XIV. and the head of Sir Richard. The statue was seized from a ship on its way to France, and the sculptor, who was on board, was compelled by Holmes to replace the head of the great Louis by his own.

At the monthly meeting of the Littlehampton School Board last week, the Clerk stated that he had received a letter from Mr. M. Stokes, of London, agreeing to act as assessor for the sum of 30 guineas, in the competition which the Board proposed to hold for the erection of a new boys' school. It was decided subject to the approval of the Education Department of the site and to Mr. Stokes' terms being inclusive, that he be appointed to act as assessor.

THE death is announced of Mr. Benjamin Stuart, for many years a managing director of Messrs. Maw and Co., Ltd. During the past ten years Mr. Stuart had resided at Broseley, where he was respected and admired for his business ability and esteemed for the many attributes of his Christian character. A warm tribute is paid to the memory of Mr. Stuart as an indefatigable worker in the cause of Methodism in The Methodist Recorder. The account given here of the interment shows how greatly Mr. Stuart had endeared himself to the people among whom he lived and worked. "Soon after five o'clock the townspeople had begun to assemble in the streets, many of them carrying lanterns. The principals of the works with which our late friend was connected, employing over 400 people, had closed until nine o'clock, and many of the employed followed in the procession, being preceded by twenty-four representatives of the church and of the business, each carrying a wreath. These had been sent by the rector of Broseley, the members of the Methodist Church, the principals of the firm, the workpeople, and many others. . . . Many of the co-workers of earlier years at Stratford gathered around the open grave at Ilford Cemetery."

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Surveying & Sanitary SUPPLEMENT.

FEBRUARY 16TH, 1898.

Practical Carpentry and Joinery.*

By GEO. ELLIS.

(Continued from Vol. VI., page xli.)

PARTITIONS are wood frames used to divide the interior of buildings, vertically, into rooms, &c., similarly as the floors divide them horizontally; but, as from their position the weight is necessarily concentrated upon comparatively small surfaces, their construction approximates rather to the roof than to the floor. They are used in preference to walling, in consequence of their lightness, small space they occupy, economy of construction, and facility with which they may be placed in any desired position, irrespective of the division of the rooms beneath them. They are not considered so fireproof as brick or stone walls, using the term in a colloquial sense, as of course it is utterly impossible to render any building stored with combustible materials absolutely fireproof; but I think that they might be rendered equally so if care were taken to select the more incombustible woods for their construction, such as poplar, larch, elm, or alder, and fill the interstices between the timbers with slagwool, kept in position by stout wire netting, to which the plaster covering could also be secured. There are two kinds of framed partition, the quarter, and the truss, the former so called because it is constructed of quartering—i.e., stuff of rectangular section, $4\frac{1}{2}$ in. by 2 in. or 3 in., has to be carried by the floor upon which it rests, or upon a wall brought up from the basement, the latter made self-supporting by trussing or reducing its rectangular shape to triangles by braces,

&c., as in a roof truss, thus rendering its shape unalterable, and directing its strains to the boundary walls. A quarter partition is shown in Fig. 70, and consists of a head, H, sill, S, door-post, D, studs or quarters, Q. One half of this Fig. is shown as a brick-nogged partition, the other half as lathed and plastered. For this purpose the studs are placed from 1 ft. to 2 ft. apart, according to the length of the laths to be used, these being usually cut in lengths of 3 ft. and 4 ft. for brick-nogging—i.e., when the interstices are filled with bricks set in mortar, the studs are spaced some multiple of a brick apart, as 27 in. or 36 in., and about every eight courses in height a row of nogging pieces, N, are inserted to tie in the bricks, which of course have no cross bond. These pieces must be the same in width as the thickness of the frame, but should not exceed 1 in. in thickness, or their shrinkage will destroy their hold on the bricks. They should be grooved into the studs $\frac{1}{2}$ in. at each end, and inserted as the brickwork is built up, and lightly nailed. A much better tie, however, is formed with lengths of hoop iron, turned up at the ends, and nailed to the studs as the work proceeds. (See A, Fig. 70.) Quarter partitions are sometimes filled in with a concrete composed of coke breeze and cement, four to one, the studs, with the exception of those

bounding the openings, being replaced by $\frac{1}{2}$ in. iron bolts, as shown by dotted lines in Fig. 70. These partitions must be placed directly over a joist, and not between them, unless resting on a wall below. There is no necessity to

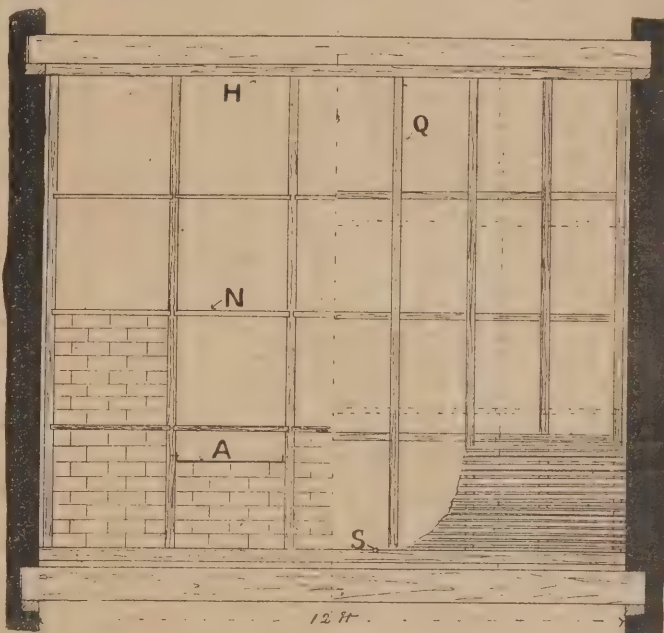


FIG. 70. QUARTER PARTITIONS.

build the head and sill into the walls, and as a matter of fact it is better not to do so, as in the case of any settlement of the supporting floor, the ends of the horizontal timbers being secured, they would be unable to follow, with the result that the plastering would crack in all directions. It might be argued that throwing the whole weight on the floor would hasten or cause a settlement, but if that result were feared the partition should be made self-supporting by trussing, when the entire weight would be thrown upon the walls, and the settlement would be uniform. No braces are required in these frames, the stiffening of the studs being accomplished by the horizontal nogging pieces. The studs are fixed either by notching them over 1 in. by 1 in. fillets nailed to the head and sill, or by stub tenons in mortises $\frac{1}{2}$ in. deep, and one quarter of the thickness of the framing. Plastered partitions can be of any thickness to suit requirements, but brick-nogged must be either $4\frac{1}{2}$ in. or 3 in., the latter size, with the bricks set on edge, being only used for inferior work. If any of the stuff used exceeds 2 in. in width on the face, it should be chamfered to reduce it to that width, or otherwise the break in the continuity of the key of the plaster will cause it to crack. When the width of the timbers renders this course impracticable, counter-lathing or brandering must be resorted to. A self-supporting trussed partition is shown in Fig. 71. This partition runs in the same direction as the joists, and it does not support the floor. There is a single opening for a door; the head and sill are 6 in. by $4\frac{1}{2}$ in.; the doorposts $4\frac{1}{2}$ in. by $4\frac{1}{2}$ in.; braces, B, 3 in. by

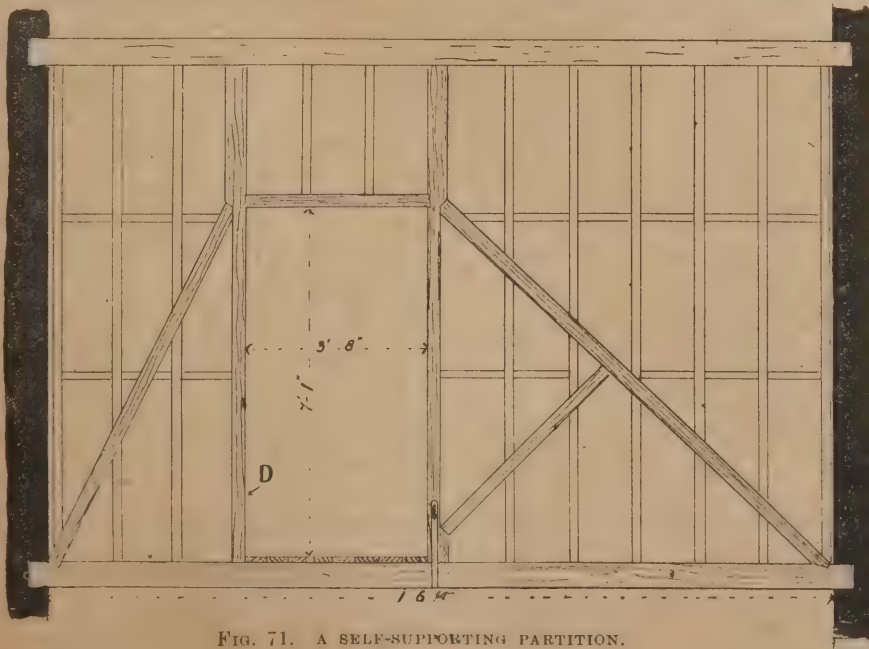


FIG. 71. A SELF-SUPPORTING PARTITION.

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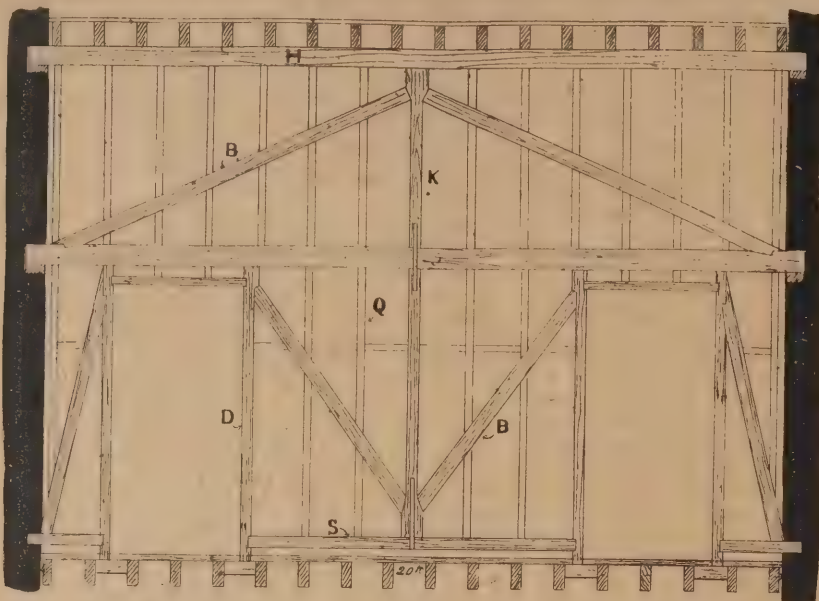


FIG. 72. A TRUSSED PARTITION CARRYING A FLOOR.

4½ in.; studs, 2 in. by 4½ in.; doorhead, 3 in. by 4½ in.; nogging pieces, 1½ in. by 4½ in. The posts should be joggled, as shown, both to reduce weight and scantling, and to form abutments for the braces; they should also be cut ½ in. short, to counteract settlement when set up. The central post is secured with wrought iron straps, 18 in. by 2 in. by ½ in.; the feet of the braces are bridle-jointed to the sill, as shown in Fig. 74. The nogging pieces and the studs are halved together, and the latter stub tenoned to the head and sill, and cut to the braces, as shown in Fig. 76.

Fig. 72 shows a strong trussed partition supporting a floor in addition to its own weight, as this frame runs at right angles to the floor joists. The sill is interrupted at the doorways, and a fresh member is introduced above the doorheads to act as a tie beam to the upper part. This is called the intertie, I, and it should always be continuous from wall to wall, as it practically carries the whole weight of the framing, that of the lower portion being first brought to the foot of the king-post, K, from whence it is carried to the head (this part being rendered practically continuous by the iron strap), and then transferred to the walls at the ends of the intertie. The intertie should rest upon and be secured to wood or stone templates, and thus act as a tie to the walls; pieces of elm or teak, about 3 ft. long and 4½ in. by 3 in., answer the purpose excellently. The head and sill should not be allowed to take a bearing at the ends at first, a clearance of half-an-inch above and below being made for the settlement of the walls. The same precautions as advised for roof trusses will apply to these frames, and suitable scantlings for a truss of this description would be: head, 6 in. by 4½ in.; intertie, 7 in. by 4½ in.; sill, 3 in. by 4½ in.; king-post, 3½ in. by 4½ in.; braces, 5 in. by 4½ in.; door-posts, 3½ in. by 4½ in.; heads, 3 in. by 4½ in.; studs, 2 in. by 4½ in.; nogging pieces, 1½ in. by 4½ in.

Fig. 75 shows a large double-framed partition for two stories, self-supporting, and carrying three floors, &c., with two small doorways above and one large one below; also an opening for a passage. Such a large framing as this would have to be built up in position, being first fitted up on a platform or floor, and the various parts marked for identification. It consists of two queen-post trusses connected by straps; the upper one, having the lower suspended from it, is made of heavier timber. The feet of the principal braces are secured by bolts, the joints being similar to Fig. 74; the diagonal braces in the upper truss are notch-halved together and screwed, the doorheads are bevel shouldered, as shown in Fig. 75, to avoid weakening the top of the posts, and the passage post should be stepped as shown to withstand the thrust of the lower brace; the nogging pieces are halved to the struts and housed to the posts, where possible, in con-

tinuous rows to stiffen the studding; the floor-joists are trimmed into the sills, which act as binders. The scantlings of the upper truss are: head, 8 in. by 6 in.; intertie, 9 in. by 6 in.; sill, 10 in. by 6 in.; top queen and braces, 6 in. by 6 in.; straining head, 6 in. by 3 in.; lower queen and braces, 4½ in. by 6 in.; door-posts, 3½ in. by 6 in. Bottom truss: intertie, 8 in. by 6 in.; sill, 11 in. by 6 in.; queens, 4½ in. by 6 in.; braces, 5 in. by 6 in.; doorhead and straining head, 3 in. by 6 in.; studding, 2 in. by 6 in.; nogging, 2 in. by 6 in. The spaces for the doorways should always be formed rather larger than the fittings actually require, to give the joiner opportunity to fix the casings square and plumb, as frequently the framing will settle out of square. These frames should be set up as early as possible in a building, so that they may settle down to their bearings, and have a chance of shrinking before the plaster is applied. Of course, in basements, all partition walls should be of brick entirely, and it is also considered advisable by many to use them also on ground floors, but if a damp-course is laid beneath the sill, no danger need be apprehended. Partitions are sometimes filled with sawdust after they are plastered to deaden sound, a few laths being left off at the top for the purpose.

Powdered sulphur, or some other insecticide, should be mixed with the sawdust before filling in. The Metropolitan Building Act requires that the interstices of a partition between floor and ceiling shall be filled with concrete pugging or some incombustible material. The weight of a square of framed partition varies from 1500 lb. to 2000 lb., the weight of a square of single flooring averaging 1600 lb., and of framed flooring 3000 lb.

Moveable partitions are used in public buildings, &c., to temporarily divide large rooms into smaller ones, they are either made in leaves about 2 ft. wide of 2 in. framing, the upper part glazed, and with ball castors at the bottom, so that they will run in any direction, the leaves hinged with steel ball-bearing

butts, or of narrow iron slips hinged together, and winding on to a drum let into a recess in the wall, the drum being actuated by geared wheels and a winch handle. This form requires guides, usually of iron, let into the floor and ceiling, for the sheets to slide in.

(To be continued.)

Surveying and Sanitary Notes.

MR. HERBERT H. LAW, an inspector of the Local Government Board, has held an inquiry at the Rhymney Urban District Council Offices into an application made by the District Council for power to borrow a sum of £10,000 for the purpose of carrying out a system of sewerage and sewage works for the district. Mr. Ilywarch Reynolds gave evidence of the receipt of an order from the Joint Sanitary Committee of Glamorgan and Monmouth to discontinue the pollution of the Rumney river by emptying the sewage of the town into it. He further detailed the results of visits paid by a deputation, consisting of some of the members of the Council and its surveyor and medical officer, to several places to inspect sewage works, with a view of choosing the best possible system, and the minutes were produced authorising the borrowing of £10,000 for the purpose of carrying out the work. Mr. W. Frazer, surveyor to the Llandaff and Dinas Powis District Council, who is engineer for the proposed works, explained the plans, &c. Mr. G. Rudd Thompson, county analyst, spoke to the analysis of the samples of effluent water submitted to him. Mr. W. Kaye Parry and Professor Hartley, and Dr. G. Revington and Mr. T. A. Shegog all spoke to the efficiency of the oxygen process.

THE City Commission of Sewers, which has had an existence of over 230 years, is now no more. The authority is merged into the City Corporation under the title of the "Public Health Department." The name of the Commission, which was originally established by the Act of 1667 for rebuilding the City after the Great Fire which occurred on September 2nd in the previous year, has long since ceased to fully describe its work. Besides being the Sanitary Authority and Burial Board for the City, it carried out some duties which in other

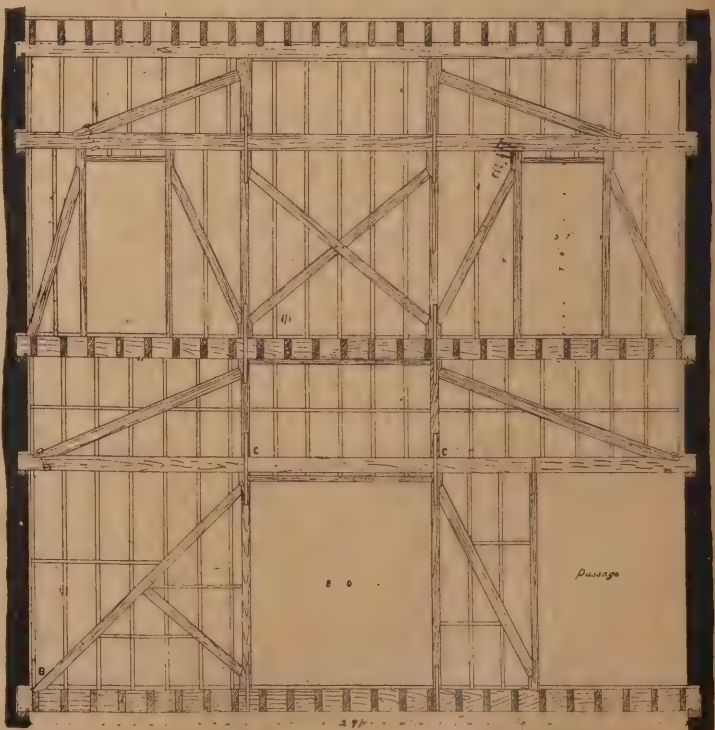


FIG. 73. A DOUBLE FRAMED PARTITION.

parts of London are under the County Council. As is well known, it was responsible for the improvement and cleansing of the streets, the paving, and the lighting. The Commission has always prided itself on the high standard of its administration, and so far back as 1867 it decided to carry out the street cleaning and dust removal itself, so as to be absolutely sure

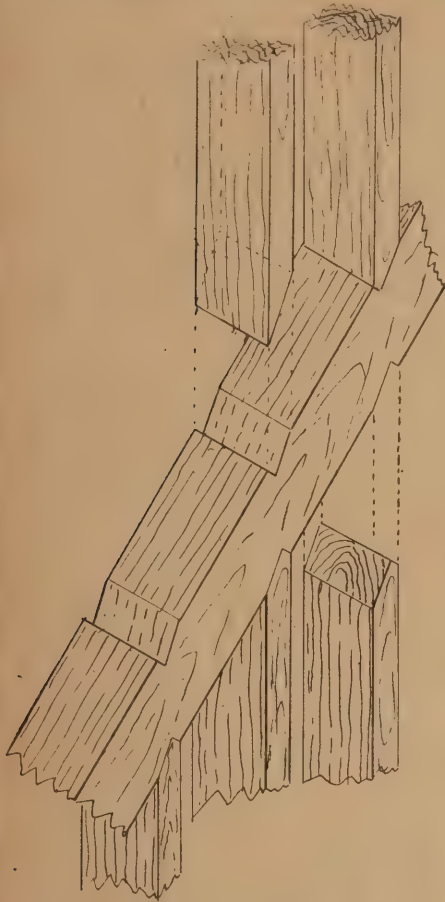


FIG. 76. SKETCH OF JOINT FOR STUDS IN BRACES.

that the work was efficiently and promptly done. There was a staff of about 700 employed in the cleansing department, and every year upwards of 70,000 tons of refuse and street sweepings have been removed to Lett's Wharf, where they were partly burned and partly sifted. The Commission maintained workshops for the manufacture of its vans and appliances. During the past fifty years the Commission has spent something like £3,000,000 on street improvements, and within that period has widened or improved more or less every

thoroughfare in the City. Among the other institutions which the Commission maintained is a cemetery at Ilford which was laid out at a cost of £82,000, and is carried on as a commercial enterprise. Last year there was a revenue of over £6000, which more than met the expenditure. While entitled to raise a consolidated rate of 1s. 6d. in the pound and a sewer rate of 4d., the Commission has always kept well within that maximum, its total rate being latterly but 1s. 4d. in the pound. Its debt is being annually reduced; four years ago it stood at £1,716,000, and is now £1,405,000. The Commission has consisted of members appointed by the City Corporation, but has worked on independent lines under its own Acts of Parliament and standing orders. All the official staff are transferred in a body to the Corporation.

The annual dinner of the Surveyors' Institution was held at the Holborn Restaurant on the 9th inst., and was attended by upwards of 200 members. Mr. Christopher Oakley, the president, occupied the chair. The Institution was founded in 1868, incorporated by Royal Charter in 1881, and at the present time numbers about 3000 members, representing a growth from 150 to 3000 in thirty years.—After the customary loyal toasts, the Chairman proposed "The Houses of Lords and Commons," to which the Earl of Jersey and Mr. Jesse Collings responded.—On behalf of "The Bench and the Bar," proposed by Mr. R. Vigers, Sir Richard Webster, the Attorney-General, responded.—Mr. Wheeler, Q.C., proposed "The Surveyors' Institution," and referred to the steady progress which that association has made in recent years. From the numerical standpoint, the Institution now occupied the second place among professional societies, omitting, of course, from this comparison those ancient corporations the law societies and the two branches of the medical profession. They had introduced a system of professional examination of a most practical character, carefully adapted to the requirements of the various branches of the Profession, and had actually examined 3228 candidates in the last sixteen years. Moreover, it had accumulated funds sufficient for the construction of a handsome building, now in course of erection in Great George

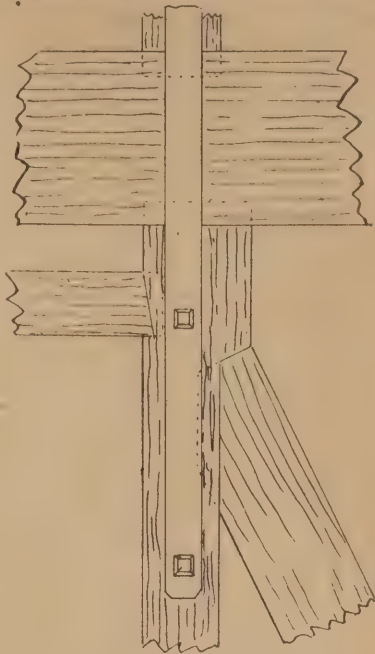


FIG. 75. DETAIL AT C.

Street, designed by Mr. Waterhouse, R.A., and estimated to cost £30,000.

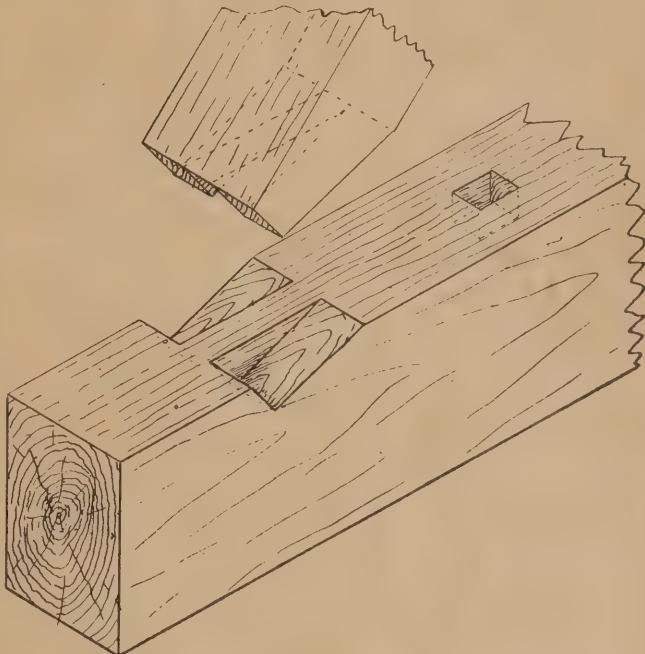


FIG. 74. SKETCH OF BRIDGE JOINT AT B.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Feb. 19	Exeter—Erection of Offices	Wiley and Co., Engineers	C. E. Ware, Architect, Gandy-street, Exeter.
" 19	Omagh—Erection of Business Premises	Graham, Son, and Wilson	W. Barker, Architect, Londonderry.
" 19	Woodbridge, Suffolk—Erection of School Classroom		F. J. A. Wood, Church-street, Woodbridge.
" 19	Ulverston, Lancs.—Two Pavilions	Cricket Club	N. E. Barnes, 14, Union-street, Ulverston.
" 21	Armagh—Reconstruction of Schools		A. Nelson, Hon. Sec. to Schools, Probate Office, Armagh.
" 21	Belford, Alnwick—Quarrying, &c., Material	Rural District Council	A. J. Ware, District Surveyor, Belford, Alnwick.
" 21	Denholme, Yorks.—Construction of Brick Culvert	Urban District Council	W. B. Woodhead and Son, 18, Exchange, Bradford.
" 21	Knockaney, Ireland—Repairs, &c., to Church		Rev. J. M. Bourke, P.P., Knockaney.
" 21	Tredegar, Mon.—Erection of School	County School Managers	C. Dauncey, Solicitor, Tredegar.
" 23	Budleigh Salterton—Erection of Cells, &c.	Standing Joint Committee	E. H. Harbottle, County Surveyor, Queen-street, Exeter.
" 23	Huddersfield—Erection of Warehouse, &c.		J. Kirk and Sons, Architects, Huddersfield.
" 23	Preston—Erection of School	Royal Cross School for the Deaf	Sames and Green, 65, Northgate, Blackburn.
" 24	Batley—Additions, &c., to Schools		W. Hanstock, Architect, Branch-road, Batley.
" 24	Marsden, near Huddersfield—Chancel, Chapel, &c.		J. Kirk and Sons, Architects, Huddersfield.
" 24	Oakworth, Yorks.—Erection of Shed		J. Judson and Moore, Architects, Oakworth, near Keighley.
" 25	Carlisle—Erection of Electric Lighting Station	Corporation	H. C. Marks, 36, Fisher-street, Carlisle.
" 25	Leicester—Construction of Bridge Foundations, &c.	Highway and Sewerage Committee	E. G. Mawbey, Borough Surveyor, Town Hall, Leicester.
" 28	Cymmer, Wales—Extension, &c., to Chapel		W. Ree, Grocer, High-street, Cymmer.
No date.	Ashington—Erection of Schools	Coal Company	Colliery Offices, Ashington.
"	Ballynagh, co. Cavan, Ire.—Constabulary Barracks		R. M. Somerville, County Surveyor, Cavan.
"	Ballynagh, Ireland—Erection of Church		Forman & Aston, Queen's-buildings, Royal-avenue, Belfast.
"	Keighley—Erection of Warehouse		J. Judson & Moore, Architects, York-chambers, Keighley.
"	Nelson—Eight Dwelling-houses		W. Dent, Architect, Railway-street, Nelson.
"	Rawmarsh—Erection of Twelve Cottages		J. Platts, Architect, Old Bank-bldgs., High-st., Rotherham

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Usk, Mon.—Repairs, &c., to School...	Western Counties Co-op. Asso., Ltd ...	F. G. Harris, Clerk, Estate Offices, Usk.
"	Stonehouse, Devon—Erection of Offices ...	"	W. T. M. Mear, Architect, Wadebridge.
"	Cromarty, N.B.—Erection of Church Hall ...	"	W. L. Carruthers, 42, Union-street, Inverness.
"	Inverness—Additions to Milbura Distillery ...	"	D. Cameron, Architect, Academy-buildings, Inverness.
ENGINEERING—			
Feb. 19	Torres, France—Harbour Defence Works...	Guardians of Workhouse ...	Department of Public Works and Prefect of Sassari, France.
" 19	Cockermouth—Supply of Hot-water Apparatus ...	"	— French, Workhouse Master, Cockermouth.
" 19	Gudhjem, Denmark—Completion of Harbour Works ...	"	Tilbud paa Havnebygning i Gudhjem.
" 21	Conway—Sewerage Works, &c. (Two Contracts)...	Town Council...	T. B. Farrington, Municipal Offices, Conway.
" 21	Glasgow—Laundry Machinery ...	Corporation ...	T. Young, 4, West Regent-street, Glasgow.
" 21	Plymouth—Erection of Refuse Destructor ...	"	J. Paton, Borough Engineer, Plymouth.
" 21	Stevenage—Supply of Engine, Boiler, &c. (3 Contracts)...	Urban District Council ...	J. Gillespie, Engineer, Stevenage.
" 21	Parsonstown, Ireland—Stamping Punches ...	"	T. Mitchell, Secretary of the Grand Jury, Parsonstown.
" 22	Glasgow—Supply of Two Station Meters ...	Corporation ...	Engineer, 45, John-street, Glasgow.
" 22	London, N.W.—Supply of Boilers, &c. ...	Vestry of St. Pancras ...	Electricity Dept. Offices, 57, Pratt-st., Camden Town, N.W.
" 22	Portland—Enlarging Well, Completing Pumping Station, &c. ...	Urban District Council ...	E. J. Elford, Engineer, Council Offices, New-rd., Portland
" 22	Worthing—Concrete Roof to Reservoir ...	Corporation ...	J. Mansergh, 5, Victoria-street, S.W.
" 23	Canterbury—Electric Wiring and Fittings ...	Town Council...	City Surveyor, 23, St. Margaret's-street, Canterbury.
" 24	Shrewsbury—Supply of Sludge Pressing Machinery ...	Corporation ...	J. Taylor, Sons, & Santo Crimp, 27, Gt. George-st., Westm.
" 25	Leige—Improvement Works on River Meuse ...	"	M. Fendius, Ingenieur, Liege.
" 28	Bridport—Erection of Bridge ...	Rural District Council ...	J. J. Roper, 74, East-street, Bridport.
" 28	Buckie, Banffshire—Deepening, &c., Harbour ...	Fishery Board of Scotland ...	Engineer, Office of Public Works, Oban.
" 28	Reife, Brazil—Harbour Improvements and Docks, &c. ...	"	Legation of Brazil, London.
" 28	Dorking—Oil Engine, Ram Pumps, &c. ...	Water Company ...	J. Mansergh, 5, Victoria-street, Westminster.
No date.	Birkenhead—Erection of Pier Bridge ...	Corporation ...	C. Browridge, Borough Engineer, Town Hall, Birkenhead.
"	Brindisi—Harbour Works ...	Italian Government...	Commercial Department of the Foreign Office.
IRON AND STEEL—			
Feb. 19	Bootle, Lancs.—Supply of Stores and Materials...	Corporation ...	Borough Surveyor, Town Hall, Bootle.
" 21	London, S.W.—Supply of Steel Rails and Fishplates ...	"	Agent-General for Victoria, 15, Victoria-street, S.W.
" 21	London, N.—Supply of Wrought Iron Fencing ...	Hornsey Urban District Council ...	E. J. Lovegrove, Engineer to Council, Southwood-lane, N.
" 21	Waterford—Supply of Cast Iron Railway Chairs ...	Waterford, Limerick, & Western Rly. Co. ...	J. Tighe, Company's Engineer, Head Office, Waterford.
" 22	London, S.W.—Supply of Railway Carriages ...	Secretary in State for India ...	Director-General of Stores, India Office, Whitehall, S.W.
" 25	Blackburn—Supply of Wrought-iron Fencing ...	Rural District Council ...	J. Diggle, 3, Longford-street, Heywood.
" 26	Thorpe, Norfolk—Supply of Water Pipes, &c. ...	"	G. Smith, Clerk of Works, The Asylum, Thorpe.
" 28	Birmingham—Supply of Welded Steel Pipes ...	Corporation ...	J. Mansergh, 5, Victoria-street, Westminster, S.W.
PAINTING AND PLUMBING—			
Feb. 19	Middleton Junction—Painting and Decorating Church ...	Trustees of Wesleyan Church ...	Secretary, 36, Greenhill-road, Middleton Junction, Oldham.
" 28	Hornsey, N.—Painting Lamp Columns, &c. ...	Urban District Council ...	E. J. Lovegrove, Council's Engineer, Southwood-lane, N.
" 28	Hornsey, N.—Painting Hospital ...	Urban District Council ...	E. J. Lovegrove, Council's Engineer, Southwood-lane, N.
ROADS—			
Feb. 19	Bootle, Lancs.—Team Labour and Cartage ...	Corporation ...	Borough Engineer, Bootle, Lancs.
" 19	Boston, Lincs.—Broken Granite, Slag, and Slag Chips ...	Holland County Council ...	H. C. Johnson, Deputy Clerk, Sessions House, Boston.
" 19	Bridgend—Supply of Material and Haulage ...	Glamorgan County Council ...	T. L. Edwards, County Surveyor, Town Hall, Bridgend.
" 21	London, N.W.—Road Materials, Hauling Water Vans, &c. (Fourteen Contracts).	St. Pancras Vestry ...	W. N. Blair, Engineer, Vestry, London, N.W.
" 21	Plymouth—Supply of Granite Setts, Road Metal, &c. (Eighteen Contracts).	Corporation ...	J. Paton, Borough Engineer, Plymouth.
" 21	Banbury—Supply of Hartshill Stone ...	Town Council...	N. H. Dawson, Borough Surveyor, Town Hall, Banbury.
" 21	Arbroath—Making Two Roads...	"	F. Minto, 1, Hillend-road, Arbroath.
" 21	Hull—Supply of Stone for Macadamising ...	Corporation ...	A. E. White, City Engineer, Town Hall, Hull.
" 22	West Ham, E.—Supply of Paving Materials, &c. ...	Town Council...	Borough Engineer, Town Hall, Stratford, E.
" 22	Cannington, Bridgwater—Stone and Haulage ...	Rural District Council ...	Ingram, District Surveyor, Cannington.
" 22	Dover—Supply of Granite Kerbing, &c. ...	Town Council...	E. W. Knocker, Town Clerk, Dover.
" 22	Pottersbury, Stony Stratford—Supply of Granite & Slag Southampton—Tar Paving ...	Rural District Council ...	H. A. Endors, Yardley Gobion, Stony Stratford.
" 23	London, N.E.—Supply of Materials, &c. (5 Contracts) ...	Hackney Vestry ...	W. B. G. Bennett, Municipal Offices, Southampton.
" 23	Hull—Tramway Street Works ...	Corporation ...	J. Lovegrove, Surveyor, Town Hall, Hack ey.
" 23	Levenshulme, Lancs.—Supply of Materials ...	Urban District Council ...	A. E. White, City Engineer, Town Hall, Hull.
" 23	Pottersbury, near Stony Stratford—Cartage of Materials ...	Rural District Council ...	J. Jepson, Surveyor, Union-road, Stockport.
" 23	Salisbury—Supply of Stones and Gravel ...	Rural District Council ...	H. A. Endors, Surveyor, Yardley Gobion, Stony Stratford.
" 23	Wrexham, Denbigh—Supply of Road Stone ...	Denbighshire County Council ...	F. Hodding, Clerk, Market House-chambers, Salisbury.
" 24	Rawtenstall, Lancs.—Supply of Road Metal, Setts, &c. ...	Corporation ...	E. W. Jones, District Surveyor, Aely-Bryn, Wrexham.
" 24	Sleaford, Lincs.—Supply of Broken Granite and Slag ...	Rural District Council ...	Borough Surveyor, Municipal Offices, Rawtenstall.
" 23	Walthamstow—Supply of Broken Granite, Lime, &c. ...	Urban District Council ...	E. Clements, 74, Southgate, Sleaford.
" 25	Thame—Supply of Hartshill Granite ...	Urban District Council ...	G. W. Holmes, Surveyor, Town Hall, Walthamstow.
" 26	Spilsby—Leading Materials ...	Rural District Council ...	J. Goodenough, District Surveyor, Thame.
" 26	Wolverhampton—Supply of Stores ...	Corporation ...	F. J. Dixon, District Highway Surveyor, Spilsby.
" 28	Lower Bebbington, Cheshire—Provision of Horses, &c. ...	Urban District Council ...	J. W. Bradley, Engineer, Town Hall, Wolverhampton.
" 28	Sheffield—Asphalting, Freestone, &c. (14 Contracts) ...	Highway and Sewerage Committee ...	J. Young, 78, Stanley-terrace, New Ferry.
" 28	Lewes—Supply of Materials and Cartage (3 Contracts) ...	East Sussex County Council ...	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 28	Norden, Lancs.—Setts, Macadam, Kerb, &c. ...	Urban District Council ...	H. Card, County Surveyor, County Hall, Lewes.
" 28	Towcester—Supply of Hartshill Stone and Slag ...	Rural District Council ...	J. W. Sunderland, Surveyor, Church View, Norden.
March 2	Oldham—Supply of Granite Setts, Kerb, &c. ...	Rural District Council ...	W. Sheppard, Surveyor, Towcester.
" 3	Brixworth—Supply of Granite, &c. ...	Surveyor's Committee ...	Borough Surveyor, Town Hall, Oldham.
" 5	Bermondsey, S.E.—Supply of Ballast and Sand, &c. ...	Rural District Council ...	W. C. Woodford, 18, Market-square, Northampton.
" 9	Belper—Road Materials ...	Vestry ...	F. Ryall, Vestry Clerk, Bermondsey Town Hall, Spa-rd., S.E.
SANITARY—			
Feb. 19	Lutterworth—Construction of Main Sewer ...	Rural District Council ...	J. C. Coates, Council's Surveyor, Bitteswell-rd., Lutterworth.
" 21	Burton-on-Trent—Sewerage Works ...	Corporation ...	G. T. Lynam, Borough Engineer, Burton-upon-Trent.
" 21	Bury, Lancs.—Construction of Pipe Sewer ...	Sewering, Paving, & Streets Committee ...	J. Cartwright, Borough Engineer, Bank-street, Bury.
" 21	Holborn, W.C.—Cleansing Streets, &c. ...	Board of Works ...	M. H. Hale, Clerk, Offices of Board, Holborn Town Hall.
" 22	Dover—Laying Cast-iron Pipes, &c. ...	Town Council...	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 23	London, N.W.—Removal of House Refuse, &c. ...	St. Pancras Vestry ...	Health Department, Vestry Hall, Pancras-road, N.W.
" 24	Pennaenmawr, North Wales—Sewerage Works...	Urban District Council ...	E. Worrall, Surveyor, Council Offices, Pennaenmawr.
" 24	Bath—Supply of Stoneware Sewer Pipes, &c. ...	Sanitary Committee ...	C. R. Fortune, City Surveyor, Guildhall, Bath.
" 28	Hunslet, near Leeds—Sewerage Works ...	Rural District Council ...	S. Shaw, C.E., Dewsbury.
Mar. 2	Oldham—Concrete Sewer ...	Surveyor's Committee ...	S. A. Pickering, Borough Surveyor, Oldham.
TIMBER—			
March 1	Hereford—Enclosing Show-yard with Hoarding, &c. ...	Herefordshire and Worcestershire Agricultural Society's Centennial Meeting.	A. Edwards, Corn Exchange Offices, Leominster.
No date.	Glasgow—Supply of Rail Chair Oak Keys ...	Caledonian Railway Company ...	J. Lorrimer, Superintendent, Charles-st., St. Rollox, Glasgow.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
March 14	Berwick-on-Tweed—Plans of Police Station and Lock-up ...	£50, £25 ...	Corporation.
" 14	Llangathen—Plans, &c., for Stone Bridge ...	"	Cardarthen County Council.
May 1	Belper—Sewage Disposal Schemes ...	£52 10s., £26 5s. ...	Urban District Council.
" 31	Singapore—Designs for Town Hall ...	£200, £100 ...	Major F. L. Anderson, R.E., South Camp, Aldershot.
No date.	Ecclesmachan, Linlithgowshire—Lunatic Asylum ...	"	Edinburgh District Lunacy Board.
"	Lewisham, S.E.—Designs for Clock Tower ...	"	Local Committee.

HAMPTON COURT PALACE.*

BY JOHN BELCHER.

(Continued from page 16.)

THERE is an estimate by Sir C. Wren, given in Mr. Law's book, which tells us what work was proposed and from which we can infer the condition of the works in hand. I think I will quote this, as it is a good model of the sort of communication to a client on such matters:

ESTIMATE OF FINISHING PART OF HAMPTON COURT.

To the King's Most Excellent M^{tie}.May it please y^r M^{tie},

Your M^{tie} having been graciously pleased to signify y^r comand's to me, that I should give an estimate of the expense of fitting the Inside of the Roomes of State at Hampton Court, from the entrance out of the Portico, to the roomes already finished above staires, containing the Great Staires, the Guard Chamber, the Presence Chamber, Privy Chamber Drawing Roome, Ante Roome, Great bed-chamber, Lobby, & Gallery for the pictures; in pursuance of this comand I humbly represent that although a perfect estimate of Finishing the Inside of any house is as uncertain as the charge of Furnishing, & is more or less according to the Intention of the owner; yet upon supposition that your M^{tie} would finish as decently as the greatness of the Roomes seems to require, and having consulted y^r M^{ties} officers of the workes what is requisit to be don, the charge of each Roome, I have represented the work of each Roome, and the total expense as followeth.

1. The Great Stair to be made with steps of the Irish stone, such as are at Kensington, but longer and easier, with Iron Rayles of good worke, the floor and Harth-places to be well paved with marble; the walls to be wainscoted twenty feet high, with fine Dore-cases.

2. The Guard Chamber to (be) fitted for Armes as at Windsor and other houses.

3. The Presence Chamber to be fitted for Hangings with marble in the Chimney and the Stooles of the Windowes and proper Ornaments.

4. The Privy Chamber in like manner.

5. The Drawing-roome with some variety, as having the best furniture.

6. The Anti-roome well finished.

7. The Great bed chamber to be perfected.

8. The Gallery to be fitted for the Cartoons, with wainscote on the windowe side, and below the Pictures and between them, to preserve them from the walls, and with a marble chimney & marble Soyles in the windowes, and other things proper to complete the same.

9. The Lobby between the presence and Gallery to be ceiled and finished.

10. The boards of these Roomes (being already provided very good and drie) are to be layd after the best manner, without nayles and with battens under the joynates.

The expense of this worke thus performed by good artists will amount to the sum of . . . 6800*li*.

All the insides of these Roomes have been long since designed, and shall be presented to Y^r M^{tie} for your approbation and correction, and accordingly the expense may prove more or less; but I am humbly of opinion the worke may be decently performed to your M^{tie}'s satisfaction for the same above mentioned.

It may further be considered that other things will be required for the accommodation of those who are to be neare your Royall person, and that the Courtes must be paved, more sewers made, and the water brought to more places, and other things necessary for your M^{ties} service which may be estimated as they are directed.

All which is most humbly submitted.

April 28, 1699. CHR: WREN."

Thus we gather that the east and south sides were externally completed, and also the upper rooms, but that the State rooms and staircases

were not. But the King contemplated further extensions, and there is a plan belonging to H.M.'s Office of Works showing what I have little doubt had been a part of Wren's scheme from the first, the formation of

A NEW AND GRAND APPROACH

on the north side. Such new entrance was to be made commensurate with the grandeur of the new buildings then in hand. The plan shows the great hall as the central feature, with a double flight of steps to the hall level. The hall, being a prominent feature, would then have taken its proper place in an orderly arrangement of buildings. The entrance court as planned was to be 300ft. long by 230ft. broad. It looks long, but we must remember that the moat made by Wolsey (probably the last ever found) was still in existence on the north side, and this court was brought out to it. Knowing what Wren could do with a colonnade, as in the Clock Court and at Greenwich, we can readily imagine the magnificence of an approach such as he contemplated here. The stateliness of this entrance to the palace was to be still further enhanced by a 60ft. drive through the park, a mile in length. And in contrast to the straight piece of water on the east side, a circular basin of water, 400ft. in diameter (5ft. deep), was to be formed at the palace end of the avenue, which at this point widened out so as to embrace a view of the whole palace. The great chestnut avenue in Bushey Park, and the Diana Basin, as it is called, are the only parts of this great scheme which were carried out. Like many another fine scheme of Wren's—like the palace of Inigo Jones for Whitehall—it was set aside. If disappointment came to such giants as these, we need not feel discouraged when our pet schemes and fine designs, by which we expected to set the world talking, are disregarded; indeed, the world has lost many good things for which it would have been the better! In carrying out the work at Hampton Court

WREN WAS HAMPERED FOR WANT OF FUNDS

(and here again we can sympathise with him!) As the work proceeded the funds ran short, and the Portland stone he loved was not forthcoming, so that he was compelled to use Bath stone dressings in many places—for instance, in the Fountain Court windows and on the south front. The upper range of windows on the east side of the court have all been renewed in Portland stone during the last few years. Sir John Taylor, in whose excellent hands the care of the structure is now placed, is also at work on the south front. To such a strait was Wren reduced that until a few years ago the central part of the south front was in cement. Now it is Portland, as originally intended. Apart from its durability, Wren no doubt appreciated Portland stone on account of its weathering to a delightful silver grey, contrasting admirably with the red brick. That he regarded colour effects is evinced by the bricks and slates he made use of. You will notice the difference in tint obtained by the dark red bricks in the base or lower story of the building and the bright colour of the "rubbers" above.

ON THE SOUTH FRONT

there is a slight difference in the colour of the lower bricks. Whether this arises from the "weathering" on this side, or is the result of another kind of brick used, I am not certain. The lower brickwork runs nine courses to 2ft., and the gauged and rubbed work above measures nine courses to 1ft. 11in., so the difference is slight. I do not know who invented "gauged" brickwork, but if Wren did not do so, it certainly cannot have been introduced much earlier. The work at Hampton Court may be said to be after the Dutch manner, partly in compliment to Dutch William and partly it may be by his influence. It is lighter and less severe in treatment than many of Wren's other works, though without any loss of dignity or of monumental effect. Through it all, however, he has retained the English tradition. Whatever he assimilated he beautified. If there was any alloy, the gold predominated, and the

English stamp was upon the whole. Mr. Maule, to whom I am much indebted for information, and who has kindly lent me the beautiful drawings and studies he has made of Hampton Court (they are doubtless known to you, but I commend them again to your notice for excellence of draughtsmanship and accuracy), has pointed out a curious, and to me unaccountable,

DIFFERENCE ON THE EAST FRONT.

On the south-east angle there are twelve stone quoins, and only eleven on the north-east corner. You will see this on Wren's original elevation, so it would appear to be intentional. There are other variations; one notable one I must mention. The width of the windows does not always correspond on the outside and on the inside, as you will find in the rooms at the south-east corner. They are divided into four divisions by sash-bars, but inside there are only three divisions. Here Wren sought to reconcile the need for uniformity in the exterior with that for proportion in the interior. He could have sacrificed the latter, as the spacing of the windows shows, but then if you stand and look at the proportion of window to wall space, the relative scale of one to the other, which is too much neglected nowadays, you will readily admit at what a sacrifice this must have been. Such an expedient would not be permitted now, and I have not the heart to find any fault with Wren, especially as it teaches us a most valuable lesson. Again, with regard to

THE CIRCULAR WINDOWS.

a beautiful feature (which we are always trying to reproduce). They were designed for the upper part of the large galleries and rooms, and how finely they come in the guard room (the first to be completed) we at once admit, but in other places these windows form the light to the entresol rooms, and some are blanks. Though the purpose is not manifest on the exterior, it is legitimate, and the way the architrave to the circular windows is managed in these rooms is excellent. Mr. Law severely criticises the pediment on the east front as being more or less a sham; but his opinion as to what Wren should have done I do not think will commend itself to an architect. He considers the pediment should rise above the balustrade, and stand out with only the sky as a background! No; Wren was quite right, and I might cite numerous good examples of this decorative treatment of the pediment; but I must pass on and talk of the carving on these two fronts. That in the pediment is by Caius Gabriel Cibber, and represents "The Triumph of Hercules over Envy." Mr. Law is my authority for attributing to him

THE COATS OF ARMS

supported by cupids. The master carver was Grinling Gibbons, but he was not a figure sculptor, so that this may account for the work by Cibber. Grinling Gibbons is responsible for the rest of the carving, though William Emmett did some of it. Gibbons was excellent as a wood carver, but these heads and keystones on the arches of the ground floor windows in stone are so undercut, especially those with the initials of William and Mary in monogram, that most of the latter, at least, have had to be recarved—and, what is somewhat unusual, they have been quite as well done as the original. Beautiful as they are, however, the material has not been recognised, but has been treated as wood. The beautifully carved lintels and cills projecting over the entrance of the east front are in marble, and are carved on the underside. There were originally metal figures above the columns on the south front, but these were removed to Windsor by George IV. Lately two figures have been sent from Windsor by the Queen, to occupy what is said to have been their old position against the central piers on the south front. The stone pedestals are there, and the figures appear to fit them. They represent Hercules and Mars. These figures are found reproduced on a small scale as supporting the firedogs in one of the fireplaces of the State apartments. Mr. Law has brought to light the important fact, viz., that

* A paper read before the Architectural Association on Friday, February 4th.

the ironwork at Hampton Court was designed by Jean Tijou, a Frenchman. It was carried out in England, and Huntingdon Shaw, who has hitherto enjoyed the sole credit, most probably worked on it. I must now rush through

SOME OF THE ROOMS OF THE PALACE, entering by the King's staircase. The walls and ceiling of the staircase were decorated by Verrio, in the manner he had made fashionable. How far Wren was responsible we cannot say. Verrio was the master painter, and did what he pleased. Passing through the King's Guard Chamber, we can only stop to notice the carved architraves and beautiful panelling in Norway oak, with garlands in limewood by Gibbons, and the large panels of excellent detail and proportions, which are characteristics of Wren's work. The chimney-pieces have bold and varying architraves to the fireplaces. The King's rooms, which occupy the south block, lead one into the other. At the back of these, and looking into the Fountain Court is the King's Gallery or Great Council Chamber. This gallery, which has, therefore, a north light, was specially arranged for the cartoons of Raphael. It is 117ft. by 24ft., and 28ft. high. For some reason, the circles which we see in the Court, and which correspond to the circular windows in the south and east fronts, are blanks. The light, therefore, is not so good as it might have been if they were windows. At present this gallery is spoilt, and its fair proportions hidden by a number of projecting screens on which are exhibited small pictures. The Queen's apartments are on the eastern side, which is the principal front, Queen Mary's writing closet being at the corner, and adjoining the King's writing closet. Next to it is the Queen's Gallery. This is

A FINE ROOM HUNG WITH TAPESTRY, which looks remarkably clean and new. With regard to this tapestry I should like to record the fact that this was discovered thirty-five years ago by the present courteous superintendent at Hampton Court, Mr. W. H. Pleasants. A picture having been removed, a defect in the woodwork behind made it apparent that some material was at the back like tapestry. Mr. Pleasants reported his suspicion to Lord Mount Temple, who at once sent word that he would make an inspection of the Palace, and that some of the woodwork was to be removed. Being an admirer of tapestry he was delighted to find that Mr. Pleasants' suspicions were confirmed. The woodwork was removed, and although dust and cobwebs abounded, and the huge and notable Hampton Court spiders marched out, the tapestry was in good order and, after a good brushing, it looks now as fresh as ever. I am under the impression that it must have been covered up by Queen Caroline in 1735, for in Hervey's memoirs it is stated that she (the Queen) was very fond of pictures and brought a number from Kensington Palace. However that may be, we are indebted to Mr. Pleasants for a sight of the tapestry which was put up by George I. The private rooms are interesting. The private chapel being without external windows is lighted by a pretty dome. The Queen's bath adjoining is well known to most. The public dining-rooms, the Queen's private rooms in the rear, and the Presence Chamber and Guard Chamber were only finished in the reign of George II.

THE DETAILS OF THE LARGE ROOMS are rather coarse, and lacking the refinement which is to be found in Wren's work. I was under the impression that Hawksmoor had something to do with this work, but Mr. Law demonstrates that it is the work of Kent. Kent did not always succeed so well as he did at the Horse Guards, and here, though there are fine features, especially in the Queen's Guard Chamber, there is a striving after "bigness" which is assertive. The chimney-piece, with the Yeoman of the Guard as consoles, is ludicrous and quite out of scale; it is a bad piece of work and fails to impress the beholder. Passing through this room, we come out on to the Queen's Great Staircase. In the absence of drawings, there is little to be said beyond that it is rather larger than

the King's Staircase. The windows in the Kitchen Court make it look lighter. The ironwork is good, and the way the risers are managed in profile is worth noting. From the landing to the right and left are the narrow galleries leading from the King's and Queen's apartments. That known as the Communication Gallery, on the west side of Fountain Court, was completed by Wren in 1699.

THE GALLERY ON THE NORTH of the staircase is now known as the haunted gallery, but that, as Rudyard Kipling would say, is another story. The gallery leads into the Great Watching Chamber, and Henry VIII's Presence Chamber, finished in 1506. The Watching Chamber or Guard Room was an unusually large apartment, with a long bow window, plaster ceiling, and tapestry walls. The gallery also led to the Chapel, or rather the Royal pew. If we draw a centre line through the Chapel, pew, and Great Hall we can see that they have been planned in relation to each other. Unless Henry VIII. destroyed Wolsey's Chapel, &c., as well as the Great Hall, this is additional evidence that the Hall was not enlarged by him. The Chapel was refitted and altered by Wren, and its carving by Gibbons and inlaid wood reredos reminds us of Trinity Chapel, Oxford. The staircase to the Royal pew from the ground floor is spacious and good in detail. The view of the ceiling and the whole Chapel from the Royal pew is very striking. I cannot refer to any of the other rooms in the Palace, as they are but little known to me, but I may just draw attention to the kitchens, which are well worth a visit.

THE GREAT KITCHEN contains the utensils and the cooking appliances, which look as though they had been undisturbed since the cook last used them. Notice the double arches over the chimney openings, the single keystone serving for the relieving arch as well as the stone arch under with its joggle joints. I have but touched the fringe of the subject, but I hope I have said just enough to kindle the desire to know more about these interesting buildings. In Hampton Court the student has a great store-house of architectural treasures. I have only had time to speak of the buildings in a cursory manner, but let me advise you to make separate studies of the chimney-pieces, the fire-backs, and fire-dogs, the old furniture, consisting of bedsteads, chairs, curtains, and needlework, old card tables, and a perfect collection of silvered looking-glasses and old china. Then there is the ironwork, wrought and cast, which is a subject worthy of special notice. And, further, there is one matter about which I had hoped to say something, viz., the Gardens. These, with their enclosing walls, piers, gates, steps, and terraces, might form the subjects of many papers. All these treasures are so accessible, and sketching orders so easily obtained, that Hampton Court should long remain

A PROLIFIC MINE TO THE STUDENT.

Those who have charge of the building, with the attendants of all ranks, are the most courteous and obliging you could find. I must publicly thank Sir John Taylor for his great kindness in lending us the valuable plans, which even if not the actual work of Sir C. Wren himself, were those from which he worked, and on which he has sketched. Also for the elevations, which seem to be his original drawings, and which the Secretary, the Hon. Reginald Brett, kindly consented to have removed from his room for our inspection. I have already spoken of my indebtedness to Mr. Law, and though I do not agree with his architectural criticisms, the information and facts he has collected together makes his "History of Hampton Court" most valuable to the architect. I may say, for the information of those who cannot afford the larger work, that he has just published a handy and very complete condensed edition, which every student should possess. Mr. Maule's beautiful drawings I must again refer to. There is a good plan of the later buildings and the southern garden, and many details for which I am indebted to him.

(To be continued.)

SURVEYORS' INSTITUTION.

STUDENTS' PRELIMINARY EXAMINATION RESULTS.

OF the candidates who presented themselves at the preliminary examination of the Surveyors' Institution, held concurrently in London, Manchester, and Dublin, on the 19th and 20th ultimo, the following satisfied the examiners:—

Rowland William Alderson, Royal Agricultural College, Cirencester; Fred Tregarthen Allen, 6, Lawn Villas, Wisteria Road, Lewisham, S.E.; Charles Edward Amore, 58, Gresham Road, Brixton, S.W.; Algernon Lawrence Berry, 1, Spencer Road, South Croydon, Surrey; Ernest Witton Booth, The Grove, Ilkley, Yorkshire; Cecil Gustav Bradley, 103, Tettenhall Road, Wolverhampton; Thomas Brent, Fairlight, Shrewsbury Lane, Shooters Hill, Kent; Hubert Brooker, Elinbank, Steyning, Sussex; Eustace Montague Browne, Court House, Kingsthorpe, nr. Northampton; George Joseph Bruzard, The Vicarage, Addlestone, Surrey; Alfred Eustace Buckley, South Field, Halifax, Yorkshire; William Burman, Kiveton Park, near Sheffield; Thomas Lingfield Caton, 82, Acre Lane, Brixton, S.W.; Charles Vyvyan Chilwell, 6, Weymouth Street, W.; Robert Cobb, Mockbeggar, Higham, Rochester; Arthur George Steuart Cooke, Ashbourne, Derbyshire; George Frederick Cotching, West Lodge, Horsham, Sussex; Adolph Heinrich Dallschaft, 21, Drayton Park, Highbury, N.; Thomas Dann, Gwynant, Overcliffe, Gravesend, Kent; William John Dixon, Codicote Vicarage, Welwyn, Herts; Cyril Henry Donne, Leek Wootton, Warwick; John Wilfrid Earle, Allerton Tower, Woolton, Lancashire; Charles William Eastwood, 38, Yorkersgate, Malton, Yorks; Charles John Elgar, Crockshard, Wingham, Kent; Henry Etlinger, care of Mr. J. S. Kincaid, 7, Leinster Street, Dublin; Frederic Fletcher, Myddelton Lodge, Whetstone, N.; Walter Foster, Armaside, Hampton Hill, Middlesex; William Fox, 15, Holdenhurst Road, Bournemouth, Hants; Cecil George French, 6, Bedford Terrace, Bedford Road, East Finchley, N.; Kenneth Graeme Gairdner, 24, West Hill, Highgate, N.; Allen Gimson, 32, Fitzroy Square, W.; Edward Brougham Glasier, Edgecombe Hall, Wimbledon Park, S.W.; James Caulfield Goff, The Agricultural College, Aspatria, Carlisle; Frederic Allen Sturge Goodbody, 35, Paradise Street, Birmingham; Alfred Goodman, 4, Clapton Common, N.E.; Ronald George Gurney, Brook Street, Aylesbury, Bucks; Clement Arthur Hall, 36, Gordon Place, Kensington, W.; Graham Harding, 66, Cannon Street, E.C.; Cecil Pryce Harrison, Caerhowel, Montgomeryshire; Ernest Harrison, "Westbrook," Bolton-le-Sands, near Carnforth, Lancashire; Sydney William Hider, 80, Upper Tollington Park, N.; Eric Cecil Hill-Whitson, 14, Agnew Street, Lytham, Lancs.; Joseph Henry Hinchcliff, 13, Brudenell Avenue, Hyde Park, Leeds; Michael Anselm Hindmarsh, Cray View, Alnwick, Northumberland; Robert Thomas Hodge, Kelvin, Cottenham Park, Wimbledon, Surrey; Charles James Hudson, Armley House, Bridlington Quay, Yorkshire; Alfred Colin Hughes, 393, Moseley Road, Birmingham; Harry Hunt, 71, Parliament Hill, N.W.; Percival Hurlbutt, The College of Agriculture, Downton, Wilts.; Cecil Walter Ingram, 2, St. Andrew's Place, Lewes, Sussex; Frederick Johnson, London House, High Street, Erith, Kent; Arthur Bayly Jones, 6, Hatherley Road, Kew Gardens, Surrey; Herbert Davies Kelleway, 24, Bateman Street, Cambridge; Philip Reginald Kemp, care of Mr. G. E. Gregson, 11, Chapel Street, Preston, Lancs.; Frederick Charles Knibb, 34, Honeywell Road, Wandsworth Common, S.W.; Harry Lisney, 11, Sydenham Road, Sydenham, S.E.; Charles Living, Jun., 125, Broadway, Plaistow, E.; Philip John May, 25, Compton Avenue, Brighton, Sussex; Thomas James Mercer, 15, Warwick Row, Coventry, Warwickshire; Herbert Arthur Mitchell, 105, Western Road, Brighton, Sussex; Charles Evelyn John Mon-

* Passed at Head of List

son, The Avenue, London Road, Newark-on-Trent; Charles Percy Moss, 58, Ashley Road, Crouch Hill, N.; Alfred Edward Oaten, Glen-thorpe, Fairfield Road, Montpelier, Bristol; Hugh Earl Perks, 2, St. Paul's Square, Bedford; George Louis Pottier, 2, St. George's Villas, Whipp's Cross, Walthamstow, N.E.; Charles Edward Rawlins, 13, Grove Park, Liverpool; Harold Thomas Richardson, 52, Southbrook Road, Lee, S.E.; Henry Hubert Riddle, 139, Trinity Road, Tooting, S.W.; Gilbert Charles Rowe, Beechwood, Langley Park Road, Sutton; Willoughby John Shaw, The Yorkshire College, Leeds; Leighton Edward Shone, Woodhouses, Whitechurch, Salop; John Henry Simpson, Middleton Stoney, Bicester, Oxon; Walter John Slipper, 16, Duke's Street, Chelmsford, Essex; Cyril Herbert Smith, Buckhill, Calne, Wilts; Quentin Cullen Smith, 7, Grosvenor Gardens, Muswell Hill, N.; Harold Soper, 43, Buckingham Place, Brighton; Frank Ewart Spalding, 3, Lyndhurst Road, Hampstead, N.W.; Percy Abel Stanley, Newton Road, Burton-on-Trent, Staffordshire; Frank Edward Strudwick, 41, Park Road, Bromley, Kent; Gerald Drysdale Sweetman, Windsor House, 13, St. Thomas' Street, Ryde, Isle of Wight; Henry John Tilley, Barnhouse, Watlington, Oxon; John Reginald Tonson-Rye, The Agricultural College, Aspatria, Carlisle; Ernest Davey Tredinnick, Penln House, Craven Arms, Shropshire; Jabez Tennyson Turner, 108, Greenwood Road, Dalston, N.E.; Robert Parsons Vale, Church House, Hartlebury, near Kidderminster; Clement Harwood Vince, The Tower House, Halton, near Lancaster; Gerald Douglas Wadham, Millwood, Dalton-in-Furness, Lancashire; Gilbert Russell Walker, The Chestnuts, Long Ashton, Somerset; Leon Maitland Walton, Ingleside, Mannor Way, Bexley, Kent; William Henry James Weston, Gloucester House, Ashford, Middlesex; Francis West Wheeler, 189, Fulham Road, S.W.; Lancelot Elce Wilson, 47, Monks Road, Lincoln; Walter Alfred Wiltshire, Fairfield, Reigate, Surrey; Leonard Wragg, Loxley, near Sheffield; Kenneth James Young, 167, Brixton Road, S.W.

THE Stockport Town Council has decided to take a poll of the ratepayers on a proposal to erect a town hall at a cost of £60,000.

THE Governors of the Bridlington Grammar School have accepted tenders for the erection of a school at a cost of £10,000.

THE tender of Messrs. Walker and Co., of Keighley, for the sewerage of Morton, amounting to £4141 6s., has been accepted.

PLANS of twenty-nine dwelling-houses, of the total value of £25,500, have been lodged with the Town Council of Aberdeen by Mr. William Ruxton, architect.

THE Brighouse School Board has instructed Mr. B. Stocks, architect, Huddersfield, to prepare plans for teachers' rooms at the Common and Longroyd Schools.

THE Local Government Board has held an inquiry at Leicester with respect to the application of the Council for the Board's sanction to a loan of £54,000 for the proposed new isolation hospital at Gilroes.

THE Macclesfield Town Council has decided upon the erection of a new technical school. The total cost will be about £6000. Mr. James Stevens, of Manchester and Macclesfield, is the architect.

THE Norwich Town Council has declined for the present to sanction the expenditure of £7000 which the Sanitary Committee recommended should be spent in doubling the accommodation of the Isolation Hospital.

AN inquiry has been held at Devonport into the application of the Town Council, who seek to acquire alleged unhealthy areas in James and Ordinance Streets, and to erect thereon workmen's dwellings, at a cost of about £45,000.

THE Birkenhead Town Council has approved of plans for the erection of salt water baths at the north end of the town. The buildings will cost £10,000, and the pumps and filtering apparatus £3000. The plans include two swimming baths—one 75ft. by 30ft., and the other 63ft. by 24ft.—nineteen slipper baths, offices, laundries, &c.

Professional Items.

BRIGHTON.—The Sanitary Committee of the Brighton Town Council have issued a detailed report on the subject of the working-class dwellings proposed to be erected. The Borough Engineer and Surveyor (Mr. F. J. C. May) has gone into the subject, and submitted to the Committee full particulars of five different designs, with statements of cost in each case, based first, on the borrowing of the money for thirty years, and, secondly, on a forty years' repayment scheme. The committee have decided in favour of design B1 for Lewes Road, and design C for Elm Grove. In observations on the selected designs, and the cost, the Surveyor says: "The plans show the houses to be erected in blocks of six each. This arrangement enables the whole of the drains to be kept outside the houses, but they may also be erected in terraces. These houses have 14ft. frontages. The fronts of the houses are intended to be built with picked stock bricks, with red kiln brick dressings. The backs to be rendered with Portland cement. The roofs to be slated. The land in St. Helen's Road, being considerably below the level of the roadway, it is proposed to form forecourts or slopes, 15ft. in width, with steps leading down to the houses. This will avoid basements. The greater number of the houses on the Lewes Road site will be level with the roadway, the remainder a little below. These houses to have 6ft. forecourts. The gradients of the land upon both sites have caused the cost of forming the roads to be somewhat heavy, added to which the Elm Grove site is rendered more so by the cross roadways, which the Council has undertaken to form. The cost of forming and metalling the roadway, laying in main sewers, laying pavements, &c., for the Lewes Road site, including the half of Coombe Road, will be £499. The cost of forming and metalling the roadway, laying in main sewers, laying pavements, &c., for the Elm Grove site, including cross roadways, will be £558. In order to keep the cost as low as possible, the houses have been designed smaller than could have been wished, but I may here add that I find it impossible to build substantial houses, including the cost of formation of roads, sewerage, &c., for the sum proposed, viz., £175 per house." The cost of B1 houses will be about £197 each, with £18 added for roadway, sewers, &c., making each £215. Design C houses will cost £192, with £18 added for roadway, sewer, &c.

By the demolition of the King's Head, West-street, one of the oldest public-houses in Brighton has been removed. It is difficult to say exactly how old it was, but there is little doubt that a hostelry of some kind has existed on the site for about three hundred years. There is a tradition that Charles II. slept in the house the night before his flight to France. Until the demolition of the old house was commenced visitors were shown the room in which King Charles was supposed to have slept; and had their attention drawn to the very peculiar beam across the floor. Though it had naturally undergone considerable structural alteration, much that formed part of the original building had been preserved to the last. Now the construction of a modern hotel to take its place will very shortly be commenced.

COLCHESTER.—The Town Council, at a meeting recently, considered the report of the New Town Hall Committee, who reported that they had had a communication from Mr. J. Belcher, the architect of the premiated design for the building, stating that he, by omitting the mezzanine floor, had in amended plans brought the floor of the Moot Hall 10ft. nearer the ground, and a gallery had been arranged for in the Moot Hall to accommodate sixty additional people. He had been accordingly obliged to re-arrange the departments, but had provided for a chief constable's room looking in three directions. Three additional police-cells had been arranged for, extra accommodation for the Free Library stores,

and a lift giving easy access to the surveyor's offices. The main features of the building would remain unchanged. The upper part of the tower had been altered in design. At the four corners now would be figures representing Engineering and Commerce, Agriculture, the River Fishery, and Military Defence. Crowning the whole the figure of the Empress Helena, whose figure is represented on the various ancient seals of the borough, and on its earliest preserved charter. The Committee recommended that these amended plans be adopted, and that Mr. Belcher be appointed architect on the terms arranged at the time of the competition for plans; also that Mr. Belcher prepare the requisite plans for submission to the Local Government Board and the Home Office, and that the Town Clerk take steps for proceeding with the application to borrow, and obtaining the sanction of the Home Office to the plans as far as they affect the police station and cells. The report was confirmed by the Council.

DUNDEE.—The governors of the Dundee Royal Lunatic Asylum have adopted a scheme for a new asylum for private patients. The new building is for seventy patients. It is to be erected on the ground belonging to the asylum at Westgreen, and will be entirely separated from the present structure. It will form two blocks, partly of three and partly of four stories, and these will contain single rooms, dormitories, and day-rooms to accommodate thirty-five men and thirty-five women. In a central space between the two blocks, and connecting them by what are known as day dormitories, will be the administrative department, consisting of a kitchen and necessary adjuncts, matron's and servants' rooms, a common dining-room, and an entrance. This entrance will be used at times as a recreation room. Open fires will be placed in the apartments, and there will also be pipes fitted up throughout the whole building for heating with steam. The arrangements generally are to be of the most approved kind, while the style of Architecture will be early Scottish baronial. The building will be of local stone, with redstone dressings. The estimated cost is £18,800. The architect is Mr. T. S. Robertson.

Extensions are to be carried out at St. Mary Magdalene's Episcopal Church. The new buildings will occupy a site situated in Hawkhill and Well Road, and extending to 63 poles. They comprise church halls and rectory. The rectory has on the ground floor parish room, dining-room, kitchen, laundry, lavatory, and offices; on the first floor, drawing-room and study, and on the second and third floors, adequate bedroom accommodation. Immediately behind the house, on the ground floor, is a hall 50ft. by 34ft. and 13ft. high, capable of seating over 300 persons. Adjoining this will be a gymnasium 50ft. long by 15ft. wide and 17ft. high. The entrance to these smaller halls will be at the north side of the rectory. The large hall, capable of seating over 1000 persons, is on the first floor. The dimensions are 70ft. by 50ft. The height of the ceiling is 35ft., and 20ft. to the wall plate on either side, with an open timber roof. On three sides of the hall are galleries 10ft. wide, having four rows of seats. Over the platform is a gallery 5ft. wide, on which an organ may be placed. Access is obtained to the large hall by two wide staircases entering from Well Road, and terminating in an ample landing from which two staircases communicate with the galleries. For emergency exits the private staircase and a specially provided exterior staircase on the south side will be available. It is estimated that the cost of the halls (without site and exclusive of rectory) will be about £3500. The Rev. Edward Sugden, Coupar Angus, designed the buildings in conjunction with Mr. Robert Blackadder, C.E.

EDINBURGH.—Operations are in progress for the reconstruction of the north-west corners of the Royal Institution buildings at the foot of the Mound. It appears that the piles on which the building stands have given way to some extent at this part, and have thrown the

projecting corner, with its Ionic capitals and architrave, about 3in. off the straight. The wall was also cracked. The whole of the corner will be taken down to the foundations, the piles renewed, and the portion affected reared anew upon a more solid foundation. The north-east corner is also affected, but only to a slight extent, and the same drastic measures will not have to be taken in regard to it. The work, which is of a very delicate nature, is being carried out under the supervision of Dr. Rowand Anderson, the architect to the Board of Manufactures.

GLASGOW.—A few days since a number of the students attending Mr. Dobson's High School building construction classes visited the new baths at Maryhill, Glasgow, and were shown over the buildings by Mr. Wm. Sharp, as sistant to Mr. A. B. McDonald, the city engineer and architect for the structure. The building is situated at the junction of Hutchison Street and Gairbraird Avenue, and adjoins the Burgh Buildings; the frontage to the former street being 119ft., and to Gairbraird Avenue 117ft. On entering from Hutchison Street there is a large swimming pond (75ft. by 35ft.), with a gallery for spectators running round three sides, underneath the seating being accommodation for eighty-two dressing-boxes. There are also shower and foot-baths provided here, and committee-room. From the adjoining entrance access is gained to the men's section of the baths. Here are situated eighteen first-class baths and twelve second class, with lavatory accommodation. The washing house entrance leads to hot baths for women, and a private wash-house for towels used on the premises. Entering the public washing house ample space has been provided for thirty-six washing stalls and three hydro extractors. The boiler-house is placed outside the main building leading from Wyndford Street. The style of Architecture is very ornate, being a treatment of English Renaissance, and built of stone, has a handsome appearance.

MORECAMBE.—The contract for St. Barnabas Church has been let to Mr. John Edmondson, of Morecambe, and the first portion of the work, which is to cost £3512, is to be started very shortly. This portion includes the erection of three bays of the nave, the chancel, and the north aisle, and it is expected that the building will be ready for consecration in May, 1899. Towards the amount required to complete the first portion £2818 has already been promised or subscribed, so there is about £700 to raise yet. To complete the church two more bays of the nave, the south aisle, and the tower will have to be built, but this portion will not be proceeded with at present. The architects are Messrs. Austin and Paley, of Lancaster. This church is designed in the transitional style from Decorated to Perpendicular Gothic, and when completed will consist on plan of a nave of five bays, 72ft. 6in. long by 24ft. wide, chancel 35ft. by 24ft., both nave and chancel being same height, 43ft. to ridge; north and south aisles 18ft. and 11ft. wide, chapel 29ft. by 15ft. on north side, opening into chancel by two arches, and having a porch as entrance, and organ transept on south side. The vestries will be at the east end with separate porch. At the west end will be a tower 20ft. square externally rising 96ft. to parapet, with porches on north and south sides of same, entering the church through the tower arch 32ft. high to apex. The church will be lighted by five four-light traceried windows in aisles, east window of six lights, and west window of three lights. The materials of construction are—for walls, rubble of Heysham stone, with external dressings of Darley Dale stone; for internal facings and dressings, flecked red Runcorn stone. The roofs and seats will be of pitch pine; chancel stalls, altar rails, and table, of oak. All roofs (except aisles and tower, which will be leaded) will be covered with Ruabon red tiles. The portion to be built at present consists of the chancel and heating chamber, three bays of the nave, and north aisle.

Under Discussion.

THE WINTER SESSION.

"PROPORTION."

Mr. Hugh Stannus, of the Royal College of Art, lectured on "Proportion" before the Sheffield Society of Architects and Surveyors at the last meeting. He mentioned and explained, by means of illustrations and numerous sketches on the blackboard, the various theories of proportion—arithmetical, geometrical, harmonic, triangular, constant, difference, etc.—as applied to Architecture and other arts, showing that each contained some truth, but not the whole truth on the subject. He demonstrated that the quality of proportion subsisting in Art is not positive, but negative, and that objects which are not in bad proportion are in good proportion, within certain defined limits, in varying degrees; and he further showed the application of this theory (his own, which he had evolved after testing and finding the others to be inadequate) to various objects of three dimensions.

BRISTOL BUILDERS.

The annual banquet of the Bristol Master Builders' Association was held at the Royal Hotel, under the presidency of Mr. August Krauss.—Professor Ryan, proposing "The National Association of Master Builders of Great Britain," said Bristol was not so black as it was painted. There was not an old house but a thousand memories clustered about it. These old walls told them of a race of builders in that city who did their work honestly and well.—Mr. J. E. Turner responded.—Mr. Krauss also spoke to the toast, and said he regretted that their form of contracts was not all that they could wish, and he trusted that a new form of contract might be adopted which should give more satisfaction to all parties than that in existence. This would save much unpleasantness between architects and builders.—Mr. E. G. Clarke proposed "The West of England and South Wales Master Builders' Federation."—Mr. Krauss responded.—Mr. J. C. Godwin submitted "The Architects, Engineers, and Surveyors," and Mr. Frank Wills and Major Bruce Vaughan (Cardiff) responded to the toast.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

The fifth meeting of the session was held at Sackville Street, Piccadilly, Mr. Thos. Blashill, (hon. treasurer) in the chair. Mrs. Collier exhibited two prints from engravings on copper, by Albert Glackendar, of playing cards used in the seventeenth century, the cards being the eight and ten of swords. The Rev. H. J. Dukinfield Astley, hon. sec., exhibited several arrow heads and early flint implements found in Norfolk; also a good example of a farthing of the Irish money of Charles I. Mr. J. Chalkley Gould read a very interesting paper upon "A Novel M.S. of the time of James II." The paper was illustrated by a fine engraving of the naval engagement off Cape la Hague from a painting by B. West, showing very correctly the type of ship of the period, also by an original pen-and-ink drawing of the stern and quarter of a man of war by "Della Bella," a Florentine artist, born in 1610 and died in 1614, contributed by Mr. Patrick, hon. sec. Two original letters of Pepys to Sir Richard Rooth, dated 1678-9, and a facsimile of the illustration of the Dutch Fleet in the Medway and Thames, taken from the Hill of Gillingham by Evelyn, the original of which is in the Bodleian Library at Oxford, were also exhibited.

MASTER BUILDERS AT NOTTINGHAM.

The annual dinner of the Nottingham Master Builders' Association took place at the Albert Hotel, Derby Road. Mr. J. Wright occupied the chair, and Mr. W. Edgar the vice-chair.—Mr. J. Woodsend submitted "The

Mayor and Corporation of Nottingham." He said, as an association of builders they appreciated all the good work that the Corporation did. They knew very well that their city had few to compare with it in respect of its well-kept streets and all those things which went to make the pleasure of living in an up-to-date city like theirs.—Mr. A. Pyatt responded. He said if a somewhat more adventurous policy had been adopted by Nottingham some years ago, it would have saved expense now. A few months ago the Council passed a resolution to put down a new sewer on the Gregory Boulevard, to cost £25,000. If their predecessors had had the pluck to make the boulevard and the sewer at the same time, they would have been saved money at the present time. As to the question of a new town hall, the spending of a quarter of a million required a good deal of consideration. They were all somewhat ashamed of the present building that stood in the Market Place, but a new one would come in good time.—The Chairman next proposed "Success to the Master Builders' Association." He congratulated the members upon the activity of the past year. Another source of congratulation was the fact that they had had very little trouble with the workmen. Last year they announced that they had reconstructed the Master Builders' Association, by which a committee representing every trade undertook the matters relating to the different sections. A very voluminous report prepared by Mr. Hodson, their energetic secretary, recounted the work done by those various committees, upon which they had to congratulate themselves.—Mr. Henry Vickers and Mr. Frank Hodson responded.

GOTHIC v. RENAISSANCE.

Mr. Basil Champneys read a paper to a recent meeting of the Manchester Society of Architects, taking as his subject "A Comparison of the Claims of the Gothic and Renaissance Styles." He described the chaotic condition in which Architecture was left at the end of the last century, and some of the ephemeral phases which followed the lapse of tradition. He said the main currents of architectural revival had been on two lines, Gothic and Renaissance, and he traced in some detail the mode of development which each of these rival styles underwent. A considerable proportion of the architectural enterprise of the last thirty years had been devoted to a combination of the elements of the two styles, either by a reversion to one or other of the many types of transitional style developed in the past or by deliberately combining anew ideas and features natural to both. He was far from saying that the hopes of the future might not be bound up in some such compromise, but up to the present time it seemed to him that efforts of this kind had been too incoherent and too scattered to make any considerable permanent impression. The main object of his paper was to break a lance in vindication of the Gothic—a great style of Architecture which, after holding the field for some considerable time, showed signs of passing out of fashion. In that style more than any other were perfectly displayed principles which must be obeyed in any style which claimed to fulfil the highest conditions of architectural effect. As to the question whether there was a probability of a new style being formed, he said they would in any case have to wait for it for centuries.

INSTITUTION OF JUNIOR ENGINEERS.

The thirteenth anniversary dinner of the members of this Institution was held at the Westminster Palace Hotel. Mr. J. A. F. Aspinall, the president, occupied the chair.—Mr. J. W. Swan proposed the toast of the evening, "The Institution of Junior Engineers." He said the extension and greatness of the Empire were mainly due to the genius and enterprise of engineers, with whose future work the interests of the country were bound up.—Mr. Vorley, who responded, mentioned that the Institution now comprised 500 members.

Enquiry Department.

NOTICE.

Readers manifest a desire from time to time to assist those who avail themselves of the Enquiry Department instituted in this Journal, and many supplementary replies answering points raised in the Enquiry Department have been received from all quarters. The Editors, therefore, have decided, in order that Enquirers may benefit also by these kind offices, to publish the supplementary answers, in addition to the answers supplied by the technical experts associated with the staff of the Enquiry Department. The more widespread the information, the more effectually will the purposes of the Enquiry Department be served, and the Editors invite replies from any to whom the questions appeal, as they appear. Such answers must be to hand not later than Saturday morning for the forthcoming Wednesday's issue.

"INEXPERIENCED."—Will the correspondent signing himself "Inexperienced" send us his address?

EXTERNAL WALLS IN DOMESTIC BUILDINGS.

A correspondent at Guildford has submitted to us a copy of correspondence which has taken place between an architect of that town and the Local Government Board relating to the construction of external walls in new domestic buildings. Plans of a proposed new house were submitted to the local authorities, by whom they were rejected, until certain amendments were carried out, one of these amendments being: "The whole of the ground floor story marked 11ft. in height must have its outer walls 14in. thick if solid, or 16in. if hollow, instead of 9in. and 11in. respectively as figured upon the plans." On receipt of this letter, the architect wrote to the Local Government Board, and as the question is one of general interest, we print the letter together with the reply.

[COPY.]

Guildford,
Jan. 3, 1898.

TO THE LOCAL GOVERNMENT BOARD, WHITEHALL, LONDON, S.W.

GENTLEMEN,—A difference of opinion has arisen between the District Council and myself as to the proper interpretation of the clauses in the model bye-laws relating to the construction of external walls of new domestic buildings.

I have submitted plans and sections showing certain external walls in brickwork of a dwelling house 9in. thick; but the District Council require them to be 13½in. in thickness, and refuse to approve the plans.

The facts are as follows, viz.—the height of the walls is less than 25ft., the lengths are less than 30ft., and they do not comprise more than two stories.

I contend that under Section 19, sub-section (a), the walls in question shall be 9in. in thickness; but the District Council's contention is that sub-section (k) applies to these walls, and that they shall be not less than 13½in. thick. The height of the highest story is 11ft., but sub-section (k) reads: "Every external wall and every party wall of any story which exceeds 10ft. in height shall be not less than 13½in. in thickness."

I have submitted to the District Council that this is in contradiction to sub-section (a) and (j), the latter providing that stories may be built to a height not exceeding sixteen times the thickness of the walls.

I shall be greatly obliged if you will explain for my guidance which of the sections of the Model Bye-laws applies to the case in point.—I am, Gentlemen, your obedient servant,
Architect.

[COPY.]

Local Government Board,
Whitehall, S.W.
Jan. 21, 1898.

SIR,—I am directed by the Local Government Board to advert to your letter of the 3rd instant, and to state that it is not the practice of the Board to advise upon questions as to the application of bye-laws in particular cases, but they may observe that under bye-law 19 (a) of the series of bye-laws to which you refer, if the wall does not exceed 30ft. in length, and does not comprise more than two stories, the minimum thickness of the wall for its whole height must be 9in. in all cases. If, however, the case comes within paragraph (k) the thickness must be at least 13½in. There is no inconsistency between the two paragraphs, and the former does not prevent its being necessary to comply with the latter in a case to which it applies.

I am, Sir,

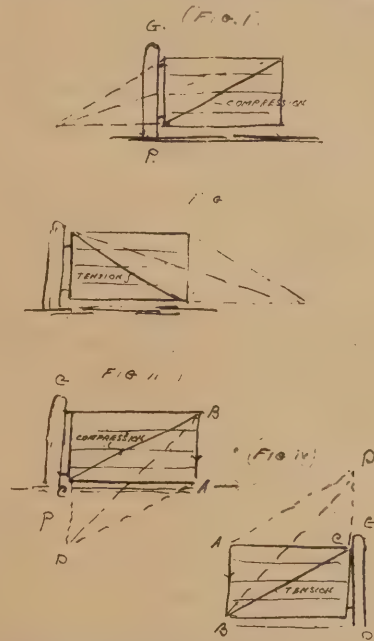
Your obedient servant,

[Perhaps readers who have had experience of this matter will communicate with us?]

HANGING GATES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Does the construction of an ordinary five-bar gate in any way influence the tendency of the gate to pull gate-post out of the vertical? In the annexed Figs. 1 and 2, do the diagonals of parallelograms, completed



by dotted lines, correctly express action of resultant force, in each case, of diagonal brace and top rail? Does Fig. 1 create the least tendency to pull gate-post out of vertical, or would the resultant of AB, BC, Figs. 3 and 4, have a more important influence on gate-post? Has not the resultant in each of these cases (3 and 4) an equal tendency on gate post?—Yours obediently, "A CARPENTER."

In reply to your queries, the internal construction of the gate has no influence upon the post whatever; its effect is that of a rectangular plane suspended at two points, the upper point or hinge being always in tension, the lower in compression. The arrangement of the diagonal brace, however, makes a considerable difference to the strength of the gate. If it is placed with its higher end near the hanging stile, it becomes a tie, being in tension, and will have little or no effect in preventing the framework dropping, but if placed with its lower end at the hinge side, it will then become a strut, and will be in the most suitable position for the material. The method of finding the resultant force is not shown correctly in your diagrams (not reproduced). The point from which the parallelogram should be drawn is at the lower front edge of the gate, as that is the point at which the weight will have the most effect. The directions of your resultants is however, right.

Correspondence.

SINGAPORE TOWN HALL COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—My attention has been called to a notice appearing in your paper giving my name in connection with a Singapore Town Hall competition.

The notice in question has been inserted without my knowledge or consent, and I write to say that I am not in any way connected with this competition, and cannot undertake to answer inquiries. I shall be much obliged if you will give publicity to this fact in your next number.—I am, Sir, your obedient servant,
Ma. CAMERON.

Downing Street, London, Feb. 9.

AN INTERNATIONAL COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—The Royal Institute of British Architects has been desired by the Marquis of Salisbury to give publicity to the International Competition for the Phebe Hearst Architectural Plan of the University of California.

In consequence of this request I should esteem it a favour if you would give me the opportunity of stating in your columns that programmes of the competition, together with maps of the site, can be obtained on application to the Secretary of the Royal Institute of British Architects, and that further photographs and a plaster relief map of the site are on view in the library of the Royal Institute.—I am, sir, yours faithfully,
W. T. LOCKE (Secretary).

PROPOSED TECHNICAL EDUCATION DEGREES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I see that at the annual meeting of the Association of Technical Institutions it was proposed that negotiations should be entered into with professional and industrial bodies, to obtain their co-operation in urging the necessity of co-ordinating the present system of examinations and diplomas, suitable more especially for day students, who aspired to take leading positions in technical industries. Now, I wish, as one interested in technical education, to protest against any extra diplomas being granted to day students other than can be obtained by those who are only able to study in the evening. I think if anyone requires a stimulus to further study, it is essentially the evening student who has almost invariably done a hard day's work previous to attending the evening classes. Besides, to grant extra facilities for obtaining distinction in technical education to day students, is to promote the theory above the practice, which I think is very much to be objected to. If, as I have been given to understand, the Association desires to obtain degrees for the technical student, somewhat akin to the degrees of our Universities, then I think it should be made difficult to obtain them, so that a high value may be placed on them. What the students of our institutes desire is not a multitude of petty degrees, but something that is worth spending years of hard study to obtain; and, further, one who cannot answer questions on the elementary part of the subjects should be unable to obtain high certificates as at present. For example, there were many candidates at the last examination in carpentry and joinery at the City and Guilds of London, who could and did pass first class in both ordinary and honours grade, and yet some of these students failed in the preliminary examination, owing to the subjects including very elementary arithmetic, mechanics, and geometry.

Such students help to lower the value of the certificates in the eyes of the public, and precautions should be taken to prevent such from obtaining any degrees if the project is ever carried out.

I would suggest that the City and Guilds issue a certificate, however meagre, for their examination in preliminary carpentry.—Yours faithfully,
"REX."

Trade and Craft.

MESSRS. THOMAS POTTER AND SONS.

We understand that the well-known business of Messrs. G. R. de Wilde and Co., carried on for the past twelve years by Mr. George Rexworthy de Wilde, at 10 and 11, Archer Street, Shaftesbury Avenue, has been purchased by Messrs. Thomas Potter and Sons, and amalgamated with their own business, which has long been pre-eminent amongst the comparatively small number of firms of ecclesiastical and art metal workers, having been established as far back as 1827, and carried on ever since at the present address (44, South Molton Street). We also understand that Mr. De Wilde, who has a deservedly high reputation as a designer of artistic work in wrought-iron, brass, and copper, has joined Messrs. Potter and Sons, and will in future have charge of this branch of their business. The combination is one that is likely to be viewed with satisfaction by architects and users of art metal work generally. Messrs. Potter and Sons, with an exceptionally skilled body of artisans, under direction of an artist such as Mr. De Wilde, should do much to encourage the revival of a taste for this particular branch of Art, of which indications have been apparent during the past few years, owing largely to the efforts of such men as Professor Herkomer, the late George Edmund Street, and other kindred spirits.

MESSRS. W. GODWIN AND SON.

The old-established firm of encaustic and art tile manufacturers, Messrs. W. Godwin and Son, Withington, Hereford (who this year are celebrating their jubilee), have recently opened a London office and showroom at No. 15, Bartlett's Buildings, Holborn Circus, E.C. They have on view a good variety of their manufactures, which are very numerous. Their floor tiles, plain and encaustic, for cathedrals and churches, have long been held in great repute by ecclesiastical architects. They have been used in quite a large number of cathedrals, both at home and abroad, as well as in thousands of churches. The plain floor tiles are eminently suited for floors of entrance halls, corridors, and general offices of large public buildings, and institutions such as free libraries, art galleries, hospitals, and asylums. They have, we believe, already been extensively used for these purposes. Messrs. Godwin's antique make of tiles are carefully prepared, and are excellent copies of ancient examples. The firm also has a variety of designs in dados in lovely artistic shadings, both embossed (Intaglio) and plain, as well as glazed tiles for walls, suitable for isolation hospitals, and all other purposes where hygienic principles are of special importance. We would specially mention Messrs. Godwin's new patent warproof slabbing. By this method it is impossible for the slabs to get out of shape or warp in any way. The cost is but a trifle more than the old method. Another feature is the excellent fender curbs, suited for all purposes. These are very carefully prepared, and made solid like a metal curb. They are extensively used both at home and abroad, one of the chief advantages being the extreme hardness of the enamel. Altogether, a visit to Messrs. Godwin's by those interested in this class of manufacture would be well repaid.

PLANS have been approved for the New Cleethorpes Church Schools.

A NEW clock, with spire, &c., is to be presented to Swansea Parish Church by Mr. Edmund Leigh Morgan, of Fernhill, Blackpill, Swansea. He has handed the matter over to Sir Arthur Blomfield, the architect, giving him carte blanche to provide an appropriate clock, with Westminster chimes.

THE Local Government Board has approved the amended plans and specifications, &c., prepared by Mr. Lerner Sugden, of Miles Bank Chambers, Hanley, and Leek, for the Bucknall Sewerage Scheme, and the work will forthwith proceed. The outlay, exclusive of land, will be about £7000.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERTILLERY (Mon.).—Accepted for the erection of girls' schools, for the Aberystwith School Board. Mr. Geo. Rosser, architect, Newport and Abercarn (Mon.).
A. P. Williams, Abertillery (Mon.). £2,073 15
BEDFORD.—Accepted for the erection of offices and store-rooms at Electricity Works.—
Rootham and Jeakings, Bedford £2309

BROMLEY.—For the execution of road-works, Homefield-road, for the Urban District Council. Quantities by the Surveyor:—
Fry Bros. £1,598 6 2 E. Peil & Sons £1,325 9 4
R. Stockwell £1,472 10 10 S. Hudson, Street-
J. Mowlem & Co. £1,338 6 0 ham Hill Station,
T. Lawsbury £1,320 1 0 S.W. (accepted) 1,254 15 3
Surveyor's estimate, £1,175 15s. 8d.

COVENTRY.—For the execution of water-supply works, Bedworth, for the Foleshill Rural District Council. Mr. H. B. Nichols, C.E., 59, Corporation-street, Birmingham:—
H. Holloway £14,114 8 6 Clift Ford £210,988 0 0
G. Law £13,284 0 0 J. Biggs 10,370 0 0
A. E. Nunn £11,600 0 0 Amos Jenkins 9,700 0 0
H. Shardlow £11,374 0 0 Southwell* 9,700 0 0
*Accepted.

ELGIN (N.B.).—For additions to police station, Findhorn. Messrs. Reid and Witter, architects, Elgin:—
Masonry.—John McKenzie, Forbes
Carpentering.—John Smith, Forbes
Plumbing and Slating.—Alex. Forbes, Forbes
Plastering.—Robt. Cameron, Forbes
Painting.—C. W. Macdonald, Forbes
Heating Apparatus.—McKenzie & Moncur
Edinburgh £150 13

GODALMING.—Accepted at a schedule of prices for redressing and repitching 1500yds. super granite roadway. Mr. J. H. Norris, Borough Surveyor, Church-street, Godalming:—
W. Griffiths, Bishopsgate-street, London.

Work to be done will amount to between £700 and £900.
HALESOWEN.—For widening, &c., Coombs Holloway, Hill, for the Rural District Council. Mr. B. Perrins, surveyor, Halesowen. Quantities by surveyor:—
A. & A. Timmins £1,614 0 0 J. Mackay £593 18 2
Curral, Lewis, & T. Crumpton, Hales-
Martin 967 8 0 Owen (accepted) 561 10 0

HASLEMERE.—For erecting three houses and shops, High-street, Haslemere. Mr. A. J. Steadman, architect, South-street-chambers, Farnham, Surrey. Quantities not supplied:—
J. W. Humphreys, Godalming £2,185 0 0
F. Milton, Witte, £2,065 0 0
Harding Bros., Haslemere £1,970 4 0
H. Carpenter, Haslemere £1,830 0 0
Chapman and Lowry, Greyshot £1,730 0 0
T. Mack, Haslemere (accepted) £1,475 0 0

HASTINGS.—For additions to schools, Clive Vale, for the U.D. School Board. Messrs. Elworthy and Son, architects, London Road, St. Leonards:—
E. Midmer £2355 0 0 Barker and Gasson £2326 10
W. Small £340 10 0 C. Harman (accepted) 317 0
J. Geary £345 0 0 A. Wood* 273 0
*Afterwards withdrawn.
(Architects' estimate, £2342.)

KENDAL.—Accepted for the erection of six dwelling houses, Strickland Place, for Messrs. Millward. Mr. John Hutton, architect, Kendal. Quantities by architect:—
Walling and Masonry.—W. Dixon and Son,
Kendal
Slating.—Jas. Bailey, Penrith
Joinery and Carpentry.—Henry Collett, £1,710
Kendal
Plumbing.—John Hodgson, Kendal
Painting and Glazing.—James Hine,
Kendal
Plastering.—Anderson Brothers, Kendal

KNARESBOROUGH.—For the execution of private street works, for the Rural District Council. Mr. R. Annakin, surveyor, 44, Station-parade, Harrogate:—
J. Speight £1,930 0 0 G. Parsons £1,545 8 6
F. U. Simpson £1,551 5 7 A. Eskeby, Star-
W. Annakin £1,598 15 0 Beck, Harrogate* £1,406 4 6
*Accepted.

LEEDS.—For the erection of shop premises, Burmantofts-street, for Mr. Hudson. Mr. J. W. Thackray, architect, 3, Rossington-place, Gathorne-terrace, Leeds:—
Excavating, Bricklaying, and Masonry.
J. T. Wright, Hartley Hill, Leeds
Carpentry and Joinery.
Wood & Smith, King's-avenue, Leeds
Ironfoundry.
Bagshawes, Victoria Foundry, Batley
Slating.
Pickles Bros., Park-lane, Leeds £1,672 17 9
Plastering.
John Jackson, 80, Cameron-st., Leeds
Plumbing.
T. Story & Co., Cookridge-st., Leeds
Painting.
Roylance & Horsman, Bagley-rd., Leeds

LONDON.—For electric light wiring of Messrs. Welch, Margaretson, and Co.'s new warehouse, Moor Lane, E.C. Mr. Morgan Williams, consulting engineer, 89, Victoria-street, S.W. Mr. Alexander Graham, architect, Carlton Chambers, 4, Regent-street, W.:—

Mains and Distribution Boards.	Branch Wiring at per point.	Estimated total for
	721s. 3/22	721 points
	S.W.G. of 3/22	S.W.G.
	point. point.	£ s. d.
H. M. Leaf 390 0 0	1 3 0	1 2 0
Strode and Co. 247 0 0	1 10 0	1 1 0
Townsend, Tamplin, & Makovski 278 18 9	1 1 6	0 17 6
Belshaw & Co. 230 0 0	1 7 0	0 15 0
Spagnoletti & Crookes* 270 0 0	0 13 0	0 12 0
	*Accepted.	

LONDON.—For extension of premises at 313, Kentish town-road, for Mr. Baldry. Mr. Walter Bailing, architect, 7, John-street, Adelphi, W.C.:—
Marchant and Hirst (accepted) £2669

LONDON.—For alterations in stables at various fire stations, for the London County Council:—
Woolwich Station.

G. Parker £170 0 0	F. Grant £115 0 0
H. Line 150 0 0	H. J. Stephens* 103 0 0
	Shooter's Hill Station.
G. Parker £120 0 0	F. Grant £75 0 0
H. Line 77 0 0	H. J. Stephens* 60 0 0
	West Norwood Station.
H. Cooke £104 15 0	R. Harding & Son* £78 7 6
J. Bowyer and Co. 83 0 0	
	*Accepted.

PENRITH.—For works of the Bleatarn water supply, for the East Westmoreland Rural District Council. Messrs. George Watson and Sons, engineers, Penrith:—
Scott and Dent £288 0 4 Jos. Jackson £254 0 0
J. Bowerbank 369 10 0 J. and W. Scott* 845 0 0
W. Taylor 359 0 0
*Accepted.

WANTED, a Second-hand Corrugated Iron-framed SALOON (one room), suitable for Pavilion on Cricket Ground, about 40 by 20.—Send particulars, price, &c., to Percy T. Runtun, Architect, Scale Lane, Hull.

TO BUILDERS.—WANTED, to Contract for Brickwork, labour only, Cottages or Villa preferred. In or near London.—Nye, Maypole Estate, Bexley. 2

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E. 9

R.I.B.A. SOCIETY OF ARCHITECTS, R. and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparations by correspondence or in residence. Fourteen first places.—G. A. T. MIDDLETON, 19, Craven-street, Strand, W.C.

R.I.B.A.—A young ARCHITECT in PRACTICE is open to COACH by Correspondence a few CANDIDATES. Terms moderate.—Apply "Coaching," Office of BUILDERS' JOURNAL.

ASSISTANCE RENDERED by Architect, Silver Medallist, at his own office. Working drawings, tracings, &c. Colour perspectives made a special study. Charges moderate.—7, London-road, St. Albans. 7

R.I.B.A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, and twelve months' courses. Any subject taken separately. Special three months' course for any of the Exams. at reduced rate.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

TO BUILDERS AND PROPERTY OWNERS.—All kinds of HOUSE PAINTING and Artistic DECORATING, &c. Work undertaken on the most reasonable terms.—Address, J. J. PEAK, 60, Sumatra-road, West Hampstead.

APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid.—Three insertions may be had for the price of two.

ST. MARYLEBONE. APPOINTMENT OF ASSISTANT SURVEYOR. Notice is hereby given that the Vestry of the Parish of St. Marylebone are prepared to receive APPLICATIONS, with testimonials, from persons desirous of becoming candidates for the Office of ASSISTANT SURVEYOR of the Parish.

The person appointed will be required to reside in the Parish, and to devote the whole of his time to the duties of the office.

The salary will be £250 per annum, and the appointment will be made upon the understanding that no pension or retiring allowance will attach thereto.

Applications, in the handwriting of the candidates, stating age, with copies of three testimonials (only) of recent date, to be forwarded to the Vestry Clerk, at the Court House, Marylebone-lane, Oxford-street West, endorsed "Application for Office of Assistant Surveyor," on or before MONDAY, MARCH 7th proximo.

Further particulars and statement of duties can be obtained at the Court House aforesaid.

Candidates whose attendance is required will be so informed.

Personal canvassing is strictly prohibited.
By order,
W. H. GARBUTT,
Vestry Clerk.

Court House,
St. Marylebone,
February, 1898.

"EMPRESS" SMOKE CURE.

The "Empress" Smoke Cure has held its ground with constantly increasing sales for many years, and is now widely recognised as the best chimney pot.

Full Particulars of Sizes, Prices, &c., on application to the Makers—

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ESTABLISHED 60 YEARS.





An Architectural Causerie.

Is the end of the nineteenth century an artistic age? Does the present generation properly appreciate Art? A writer in a contemporary, considering "the position of Art at the end of the nineteenth century," answers both these questions in the negative. And yet, he remarks, how much has been done to popularise Art? We have schools of art with an increased number of students in all our large towns. We hear

imitate painting on the stone. Many times, too, has he seen good painted east windows half concealed by hangings behind the altar. And then as to Street Architecture. Public and private buildings of modern dates do not, the writer asserts with some amount of truth, impress one with the idea that the public cares much for beauty. In some parts of the country, people impressed with the picturesqueness of the delightful half-timber houses of old time, have put up imitations, the timber forming no part of the structure, but consisting of a thin framework tacked on in front of the walls. Dishonest here again! Is it any wonder that Art ceases to flourish under such conditions? The towns unlovely, the country spoilt in many places by utilitarian improvements, and disfigured by advertisement boards? Where shall the landscape painter go for his subjects save to the mountain and wild rocky shore? Rustic cottages and picturesque mills have given place in many instances to modern abominations; the ivy-mantled church tower has had its ivy stripped from it by the restorer; the lead or stone tiled roof has given place to slate or tiles of glaring red brick, which will require a generation or

able, too, that the rising generation of painters and sculptors contains a far larger proportion of men who are willing to recognise Architecture as an Art, and an architect as a man and a brother. But at present it is certain that there are a far larger number of architects who take an interest in, and know something about, painting, than there are painters who take an interest in, and know something about, Architecture. This is all the better for the architects, and all the worse for the painters. This good understanding which is thus growing up between the practitioners of the various Arts and Crafts must, in the long run, be advantageous to all: but in the meanwhile it has a certain effect upon those architects who come most within the painter's influence, which is bad for all. There is a tendency among such architects to lose their own independence of judgment, and to look at things too much from the painter's or decorator's point of view. This is very noticeable in the work of those more directly associated with the Arts and Crafts, and the Art Workers' Guild, &c. Considering that painting is an easier art to master than is Architecture, and that consequently there is a stronger



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. SECOND PREMIAED DESIGN. BY MESSRS. NICHOLSON AND CORLETTE.

continually of art decoration, art furniture, art drapery. The young lady of the period detests marble mantel-pieces and seeks to give a room an air of antiquity by nailing to the ceiling a long, hollow deal box, stained so that it may have the appearance of an old oaken beam or rafter. The great object now seems, according to the teachers of aestheticism, to be to make everything look like something which it is not. How different is the teaching of the modern guides to taste from that of the great master, who laid it down that truth was the one thing necessary to good Art, that it was as disgraceful for a building to have imitation ornament, common wood painted, with a view to delude the beholder into the idea that it was some rare wood or costly marble, as it would be for a lady to wear sham jewellery. The writer proceeds to further reveal the bad taste and falsity in art matters prevalent in the English home, and then turns to our churches and our street Architecture, where he alleges similar shams to exist. He tells us of churches in which cheap but "effective" ornamentation, as it is called, pretending to be something much better than it really is, may be found—stencilled canvas nailed round pillars and along the mouldings of arches to

two before Nature can repair the damage that has been done, and tone down the glaring vulgarity of the building with moss or lichen. Art is not dead, but it is languishing, adds the writer; what has been done may be done again if surrounding conditions improve, if men arise who paint and design, not for the world's praise, not for the coin that their work will bring them, but for the sake of Art itself. H. C.

The Aesthetic Architect.

THE growing interest which the younger generation of architects takes in the Allied Arts is a fact which is of great importance, and which must be a source of gratification to us all. It points to a coming time when the Arts shall be united, when we may have again a real living school of Art. It is quite the usual thing now for every architect who intends to be worthy of his Profession to paint and to model, as often as he has time and opportunity; to be acquainted with the latest ideas and theories that circulate among the painters or sculptors, and to be able to discuss them with the practitioners of these Arts. It is notice-

able, too, that the rising generation of painters and sculptors contains a far larger proportion of men who are willing to recognise Architecture as an Art, and an architect as a man and a brother. But at present it is certain that there are a far larger number of architects who take an interest in, and know something about, painting, than there are painters who take an interest in, and know something about, Architecture. This is all the better for the architects, and all the worse for the painters. This good understanding which is thus growing up between the practitioners of the various Arts and Crafts must, in the long run, be advantageous to all: but in the meanwhile it has a certain effect upon those architects who come most within the painter's influence, which is bad for all. There is a tendency among such architects to lose their own independence of judgment, and to look at things too much from the painter's or decorator's point of view. This is very noticeable in the work of those more directly associated with the Arts and Crafts, and the Art Workers' Guild, &c. Considering that painting is an easier art to master than is Architecture, and that consequently there is a stronger

A. R. J.

KENSINGTON PALACE.

THE OLD STATE APARTMENTS.

SEEING that considerably more than a century has elapsed since the old State apartments in Kensington Palace have been requisitioned for use, the intimation that, in view of the Queen's resolve, the Government has been ordered to submit to Parliament an estimate of the cost of such improvements as may be deemed necessary, will scarcely come as a surprise to anybody. If they do not actually bear the "dust of ages," the rooms in question are at any rate time-worn, and there must needs be dilapidations that will have to be made good ere the public are invited to cast their eyes over their contents. Faded, in truth, are the paintings seen on the walls of the staircase that leads to the disused apartments, and it needs but the exercise of little imagination to credit the assertion made by a well-informed writer that "on a gloomy day the strange old masquerading figures are hardly visible, but when the sun shines a face here and there comes out with startling distinctness." The flat ceiling is painted to represent a dome, and faces peer down through the skylight, and "the effect," it has been said, "when the mouldings were clean and the gilding bright, may have been very good, and Kent deserves the credit of having made the most of the resources at his command." To revert for a moment to the State apartments which are shortly to be thrown open for public inspection, it is interesting to be reminded, on the excellent authority of John Timbs, that they are twelve in number, and are reached by way of

THE GREAT STAIRCASE

of black and white marble and graceful iron-work already referred to. Some of the State rooms are hung with tapestry, and have painted ceilings. The Presence Chamber has a chimney-piece richly sculptured by the incomparable Grinling Gibbons with flowers, fruits, and heads, in form of decoration wherein he excelled. The King's Gallery, in the south front, is described as having an elaborately-painted allegorical ceiling and a circular fresco of a Madonna after Raphael. A lofty apartment, known as the "Cube Room," is remarkable for its gilded statues and busts, as well as a bas-relief in marble of a Roman marriage by Rysbrack; while the "King's Great Drawing Room," now all but empty and bare, yet shows signs of having been a bright and cheery apartment, overlooking, as it does, the gardens towards the Round Pond.

THE "QUEEN'S GALLERY."

situated at the rear of the eastern front, has above the doorway the monogram of William and Mary, and the pediment is embellished with representations of fruits and flowers in high relief and wholly detached—an example of carving which has been attributed to the wonderful Gibbons. Time was when the walls of the venerable building boasted not a few historical paintings. Of the pictures that adorned Kensington Palace in days of yore, many have found their way to Hampton Court, but the majority, seemingly, have vanished, several public buildings now rejoicing in their possession. In the reign of George II. the Royal residence in the old Court suburb appears to have contained a goodly number of priceless works of Art, and reference is to be found in chronicles of the time to Vandyck's "King Charles and his Queen," "Cupid and Psyche," and "Three Children of Charles I.," and to portraits by Kneller, Tintoretto, Titian, Holbein, and many other masters. History tells us that the aforetime favourite abode of the House of Hanover was originally the seat of Sir Heneage Finch, Solicitor-General, and afterwards Earl of Nottingham and Lord Chancellor of England; and it was his son, the second Earl, who sold it for the sum of 18,000 guineas to King William III., within a short time of his accession. By that monarch, however, a story was added, from designs made by Sir Christopher Wren, whilst the north-west angle was built by George II. as a nursery for his children.

BEAUTIFUL BRITAIN.

A CHECK ON VANDALISM.

THE necessity of preserving places of natural beauty or historic interest from ruthless demolition is too obvious to need insisting upon. Had not the National Trust for Places of Historic Interest or Natural Beauty come into existence three years ago, it is certain that more than one lovely spot would have been given over to the speculative builder instead of being the property of the nation. The National Trust, whose president is the Duke of Westminster, is an Association through the medium of which landowners and others are enabled to dedicate to the nation lands or buildings or monuments of beauty or traditional worth, whose natural or historic features they may desire to preserve for the benefit of posterity. But the Trust, says the Daily Mail, is not merely the passive recipient of such properties as may be presented or bequeathed to it. It is active in

ROUSING PUBLIC OPINION

to the necessity of preserving beautiful and interesting spots which are in danger of being bought up for commercial purposes and destroyed, and it keeps a sharp eye on all legislation which has any bearing upon the question. Thus, the Light Railways Act was suitably modified in so far as there was a danger of the Act injuriously affecting natural scenery. It will be remembered that a couple of years ago the Elder Brethren of Trinity House proposed to demolish the Trinity Almshouses in the Mile End—that charming bit of old London attributed to Sir Christopher Wren. We owe it to the National Trust, in conjunction with other bodies, that this act of vandalism was not carried out. Visitors to our lovely Cornish coast know that facing the far-famed Tintagel Castle—home of Arthurian legend; where "the blameless king" held his court, and his "Knights of the Round Table" assembled—stand the headland of Barras Head—the only point from which the castle can be seen to advantage. The headland was about to be converted into an hotel property, when the National Trust stepped in and purchased the entire estate. Thus one of the most valuable features of interest in all England has been secured to the nation for ever. In the case of Barmouth Cliff, another beautiful spot which the Trust has lately acquired, the circumstances were different. The cliff was generously presented to the Trust by a Mrs. Talbot. A similar remark applies to the Falkland Memorial at Newbury, which was transferred to the Trust by the Newbury Field Club. But one of the most interesting memorials that the Trust has acquired is the

OLD CLERGY HOUSE AT ALFRISTON,

near Eastbourne. It is an almost unique monument of the dwellings of the pre-Reformation secular clergy, and belongs to the early part of the fourteenth century. The acquisition of this house cost the Trust merely a nominal sum, but another £250 is required to put it into tenantable repair. Half of this amount has already been collected, and towards the other half the Duke of Devonshire has promised £50 if the public will give the remaining £75. This by no means exhausts the list of the Trust's achievements. It has just acquired an interesting old hall at Salisbury, known as the Joiner's Hall. It has interested itself in the preservation of the Wall of Antoninus in Scotland, which marks the most northern boundary of the Roman Empire in Britain. It has co-operated with others in the efforts made for the purchase of Churchyard Bottom Wood, near Highgate, and it has concerned itself with varying success in such objects of interest as the Fall of Foyers, Croft-an-Righ—a piece of land near Holyrood Palace—Cheddar Cliffs, Turner's house, Tyn-dall's house, the Roman villa at Darenth, "West Hill" at Hastings, "Devil's Dyke" at Newmarket, Bute House Estate at Petersham, and another pre-Reformation Clergy House near Stafford.

"PRETENTIOUS IMPROVEMENTS."

A PRESENT-DAY ABUSE.

MR. RICHARDSON EVANS, hon. sec. to the S.C.A.P.A., thus speaks of the Westminster Improvement Scheme in a letter to the Times: "It is agreed on both sides that the scheme must be judged by its merits, or want of merits, from what is commonly called the aesthetic point of view. Whether general convenience demands in that quarter of London huge flats and shops rather than comfortable dwelling-houses for the fairly well-to-do is disputed. It will be asserted by some that much will be destroyed which on grounds of sentiment it would have been well to preserve; and against this will be set by others the advantage of substituting wide avenues for slums which are not everywhere picturesque. About the comparative utilities in these respects I have nothing to say. I am content to deal with the claim made by the promoters that the result of their handiwork will be to create stately streets. On the other hand, I take note of the anxiety shown by their critics to insist that they shall in fact, and not in profession merely, provide for the continuation of the Embankment as a thoroughfare worthy of our splendid city and noble stream. I want to ask seriously what prospect there is that, under existing conditions, the undertaking given by the projectors of the improvement can be fulfilled or satisfaction given to the desires of their adversaries, even should these latter obtain such a modification of the plan as they doubtless contemplate? Anyone who visits, say, Ludgate Circus or Trafalgar Square (at night) will see at once what

THE INEVITABLE END

is to all these pretentious improvements. The labour of the designers, be it well or ill inspired, is promptly disguised by conversion of the façades into stations for the display of all sorts of stupendous devices intended to catch but not to please the eye. It is trifling with sense to talk gravely about architectural embellishments when the art of Architecture itself is rapidly ceasing to affect the aspect of the most important of our streets and public places. The need of the time is not so much to create as to protect; not to squander vast sums upon imposing edifices, but to enable the elements of beauty and dignity in existing city prospects to have fair play. Nothing can be better in itself or more encouraging than the efforts continuously made to save isolated points of interest from stupid destruction, but they would be more fruitful of practical good if the principle which inspires them were logically and consistently applied. In this instance there is an opportunity. When Parliamentary powers are sought for carrying out the scheme, let it be the business of every member of the House of Commons who understands what the "greatness of London" means to secure the insertion of a provision which will insure that the edifices to be constructed shall be and shall remain buildings simply, and shall not be converted at the whim of the occupant into

TOWERS OF ASSAULT UPON THE SIGHT

of those who pass by. It should be the interest of promoters to offer spontaneous guarantees to this end. A clause penalising advertising disfigurement would enable them to say with good conscience that they were presenting London with a system of boulevards, which would not only do something to promote the convenience of traffic, but would also minister to the pleasure and pride of the citizens of Westminster. Success in this isolated attempt to vindicate the amenities would furnish an eloquent object lesson, of which the moral would make itself felt in corresponding cases elsewhere. Those who think of defeating the project may do well to meditate whether, having regard to the possibility of failure on the heroic line, they ought not at least to make sure of doing lasting good by devoting some part of their energies to the furtherance of my most modest suggestion."

NOTTINGHAM COMPETITION.

CEMETERY BUILDINGS AND LAND-SCAPE GARDENING.

BY A SPECIAL COMMISSIONER.

(Continued from Vol. VI., page 547.)

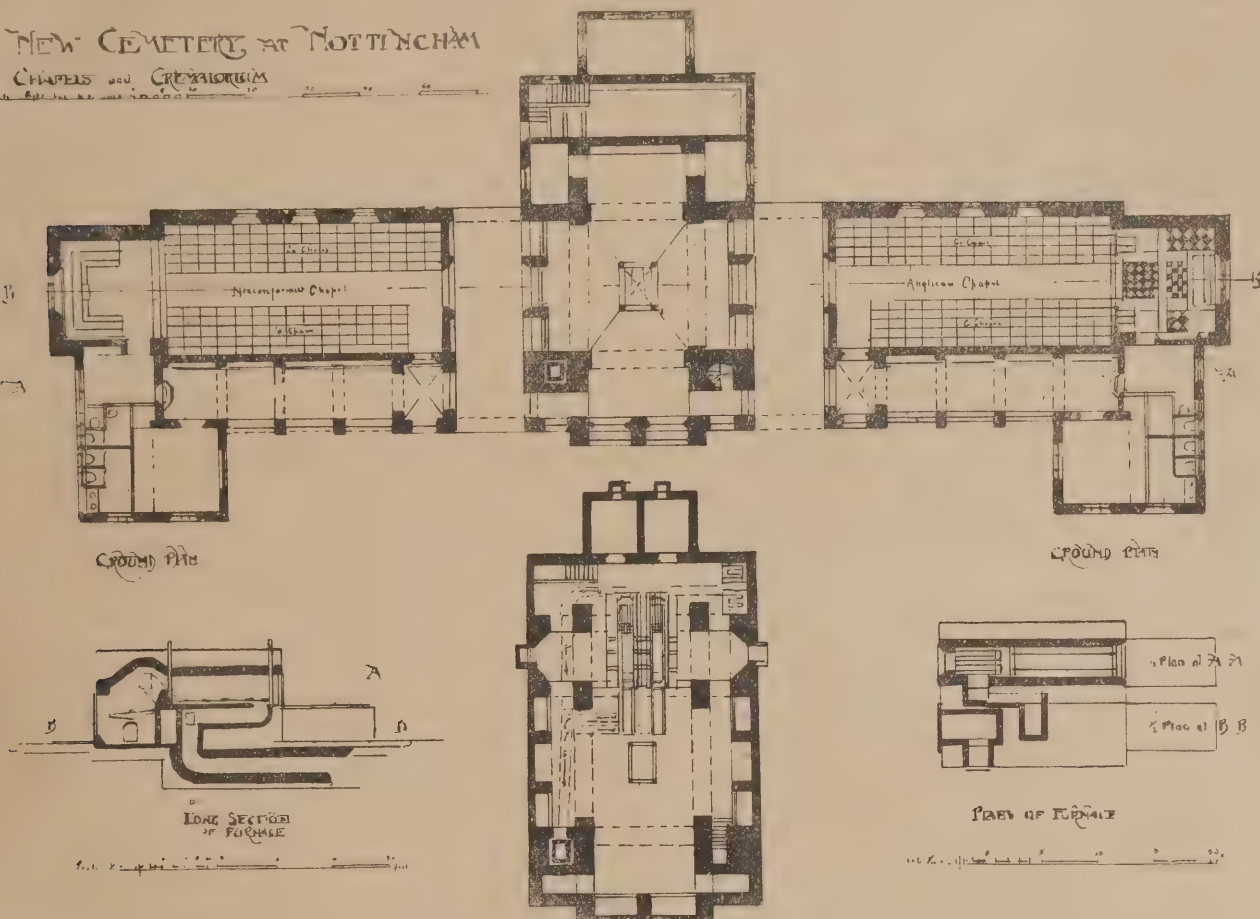
AS far as one can judge, the assessor for Competition B (i.e., the buildings) placed the plan first which he considered most suitable generally, but less as a matter of art than as a plan. The second design, however, looks as if the artistic element had caused its selection; and, of course, cost was no factor in either case, as it was ignored in the conditions.

entrance, or "bier chamber," the coffin thus arriving into the chapel by another way; (2) that the incinerating chamber is not below the buildings; (3) that the cremation hall is treated as though for a service, with a pulpit and (P) lectern. An excellent kind of cloistral columbarium is arranged, and we see no reason why access should not be given to the waiting rooms therefrom. The Dissenters' chapel is quite satisfactory, but we have much fault to find with that for the Church of England, as evidently the artists do not understand her ritual. Two heating chambers are provided—a seemingly needless expense—but are happily arranged. The domestic buildings have no very special merit, except that of reticence. The main entrance is, however, good, being simple and effective.

believe, been superseded. The entrance gates and lodges are well-designed and planned, but suggest rather the large country mansion than the crematorium. Altogether Messrs. Nicholson and Corlette are to be congratulated on a picturesque design and a very pretty set of drawings.

We now come to the vigorous design sent in by Messrs. Robson and Newberry, of Westminster, which certainly looks its purpose—as a canon of Art, a *sine quâ non*—and although it has an ambitious appearance, we believe that it works out the least expensive, the plan being decidedly simple. The authors estimate the crematorium block at £8534. A central waiting-hall is provided, top-lit, and roofed with a dome. Four low towers flank this, variously used as vestries, staircases, muni-

NEW CEMETERY AT NOTTINGHAM
CHAPELS and CREMATORIUM



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. SECOND PREMIATED PLAN. BY MESSRS. NICHOLSON AND CORLETTE.

The four great difficulties with which the architects had to contend were:—

1. The modernity of the subject, and consequent difficulty in procuring information.
2. The rapid falls of the ground, even at the most suitable position on the site.
3. The absence of a clear statement as to the intended outlay.
4. The landscape gardening.

The first premiated design, by Messrs. McKewan and Dunn, of Birmingham, is shown in a neat washed perspective, and is rather attractive, but it is unconvincing from its peculiarly thin and anæmic appearance. The grouping is not unpleasing, if completely un-funereal. But we think the artists have either gone to considerable expense in unnecessary "making-up," or the levels of the ground are incorrectly suggested in the view. It is difficult, without knowing the position of the buildings on the site, to realise the lie of the land. At any rate, the hearse would have to stop twice on the side of the hill; first to deposit the coffin at the chapel, and then to take it on to the incinerating chamber. The general plan, however, merits attention. Its principal advantages over the other two, which we give as types of plans, are: (1) That, whilst the mourners are put down at their desired porch in the front, the hearse goes on to a side

The second premiated design, by Messrs. Nicholson and Corlette, of London, is decidedly charming, and their wintry perspective shows it with effect. St. Cross, Winchester, comes to one's memory instinctively, and one wishes the work were an addition to some Oxford college, for this design again partakes nowhere of the funest. In fact, these artists have shrunk from showing the one indication—the incinerator chimney—which stamps the work as that of idealists. The drive up looks about 1 in 7 or 8, and, like the first premiated design, it is difficult to see how the other levels have been treated. A large amount of "making-up" is, again, indulged in, or the levels somewhat ignored. The points in which this plan varies from the other two are: (1) two drives through, thus isolating the crematorium from the chapels; (2) a central tower (containing the chimney) over crematorium; (3) conveniences attached; (4) columbarium not good. We think the entrance tunnels in theory excellent, but in practice doubtfully so; they will always be damp and windy. The mourners' entrance is not so well arranged as in the first design, and the waiting-rooms are not so handy. We doubt the advisability, too, of making the crematorium block also the convenience for the cemetery. The apparatus shown looks like that in use at Manchester, which has, we

ment and retiring-rooms, &c., and the two chapels fit in east and west between the towers, whilst the cremation hall occupies one other side, and the great entrance the other. The weak points of this plan, which has the merit of directness and large handling, are: (1), the steps at the entrance, evidently there for the sake of economy, as the building takes the natural fall of the ground; (2), the possibility of mourners becoming mingled should two or three funerals take place simultaneously. The design is distinctly original—we can recollect nothing like it—but it is, perhaps, a little un-English. The artists, however, have a clear sense of values. Moreover, the levels here are thoroughly studied, and a funereal character has been imparted to even the entrance gates. The lodges, &c., are unpretentious, but neatly designed. These artists seem to have attempted the landscape gardening as well as the buildings, for their main block is placed in a terraced shield, thus gaining excellent columbaria to the south, a sundial, churchyard cross, &c. The grouping from the railway "comes" finely.

The winners of the landscape gardening are: (1), Mr. T. W. Mawson, of Windermere; (2), Messrs. W. Barron and Sons, of Borrowash, Derby.

WREN'S VANDALISM AT HAMPTON COURT PALACE.

MR. JOHN BELCHER'S paper read before the A.A., and published in our two last issues, provoked an interesting discussion. The President said he supposed there was no more interesting subject which could be brought before a body of architects, and no building more fascinating to them, than Hampton Court Palace. It was certainly

THE MOST INTERESTING BUILDING

in the vicinity of London. Glancing through Mr. Law's historical account of the way in which Hampton Court was erected and added to, they could more readily understand the different growths attached to the original structure, and could trace and thoroughly grasp the designs of those who carried out the work from the commencement. It was really most remarkable that one man should have had so much to do with such a large building; he referred to Cardinal Wolsey. No doubt it was to his theory and intention in carrying out so grand a building that we were indebted for the foundation of a structure which, although added to by Wren in a different style, yet presented a building of such interest, not only of the Tudor times, in which it was commenced, but of the different periods in which the additions were made. If it had been attempted in the Early Gothic days to make additions, and restore the buildings in the style prevalent when the original building was erected, we should have had, he was afraid, a building nothing like so interesting, and certainly not so grand, as Wren had made it. It was a matter of regret that funds were not forthcoming at the time to carry out the splendid scheme which Wren had put upon paper. It was an unique building not only from a structural point of view, but also on account of its colour, which was simply remarkable. All architects and artists who went to Hampton Court felt that they could not only revel in the grandeur of the building itself, but also in its colour. To understand

THE INTERNAL ARRANGEMENTS,

they wanted to be acquainted with the great Court functions carried out in those days, and especially by Cardinal Wolsey. It made one regret a little that we had gone past the days when it was possible to erect and keep up such buildings as this. We were more commonplace and matter-of-fact than the people were then. But we could see that such buildings as Hampton Court were kept in repair, and it was fortunate that now we had all these buildings well looked after by the Office of Works. It was probably a misfortune that portions of the Palace originally erected for one purpose now served another. He thought it was in the reign of one of the Georges that the building was divided up and made into residences for

noble families and others. Considering what had been done in fitting them up, it was marvellous that more mischief was not wrought from an architectural point of view; indeed, it was a wonder that the building had survived to the present day. Not long ago a fire broke out there, and it aroused the feelings of architects and others interested when they found that the building ran such a risk. It was gratifying to know that since then facilities had been given for the protection of the palace. It would be a national calamity if such a building as Hampton Court was not provided with means to cope with fire.—Mr. E. Law said it would be noticed that there was some disagreement between the lecturer and himself upon one or two topics in relation to Sir Christopher Wren, but he hoped no one would think that he (Mr. Law) was not a most enthusiastic admirer of

WREN'S WORK AT HAMPTON COURT.

He had studied the Court day after day and hour after hour, and knew every inch of it, and there they had an immense field for architects and those interested in the Art—to go there and study the detail and plan, and the whole scope of the building. It was only those who knew the buildings thoroughly that could fully appreciate the extraordinary skill and genius with which Wren accomplished his task. His remarks upon Wren were rather deprecatory of what he did to the older part of the building which he pulled down. He was sorry there was not at the time a Society for the Protection of Ancient Buildings, because then we might have had preserved to us a more interesting part than the Tudor, which Wren left standing. He regretted that Wren—or possibly his master, William III.—in adding the fine suite of rooms at Hampton Court should have destroyed the existing work, which was full of the most interesting historical reminiscences. But Wren did only a small portion of what was intended to be done had William III. lived. Had the latter lived longer probably we should have had no Tudor work left at Hampton Court. He shared in the regret that Wren did not finish the grand entrance to the Tudor Park. On

THE QUESTION OF THE CHIMNEYS,

those in the Tudor portion of the Palace were an ornament to the whole design. They grew out of the building, as it were, and the artist and architect, or whoever it might have been, had treated them in the most masterly way. In Wren's style they saw how difficult he found the task to deal with the chimneys in an adequate manner. He certainly thought they were a disfigurement, rising as they did in a scraggy way along the top of the balustrade. In conclusion, Mr. Law strongly advised architects and students to visit Hampton Court, where the facilities for study and enjoyment were unequalled.—Mr. H. H. Statham, in proposing a vote of thanks to the lecturer, said Hampton Court reminded them largely

of the history of Architecture, to be studied in a place which, perhaps, most of them had visited more as a holiday resort. He must confess that he was a Wolseyite, for he admired the Tudor part of Hampton Court more than Wren's, and wished that Wren had dealt more kindly with it. But he fully recognised that when a new sovereign came to a country and wanted a new palace to live in the question of making it comfortable for him was first considered, and, therefore, when the student was invited to admire all Wren's work, would it not be better to think of it not as Wren's, but as Architecture, and also why they admired it? There was one part of Wren's additions which he admired, however, and that was the interior

TREATMENT OF THE QUADRANGLE,

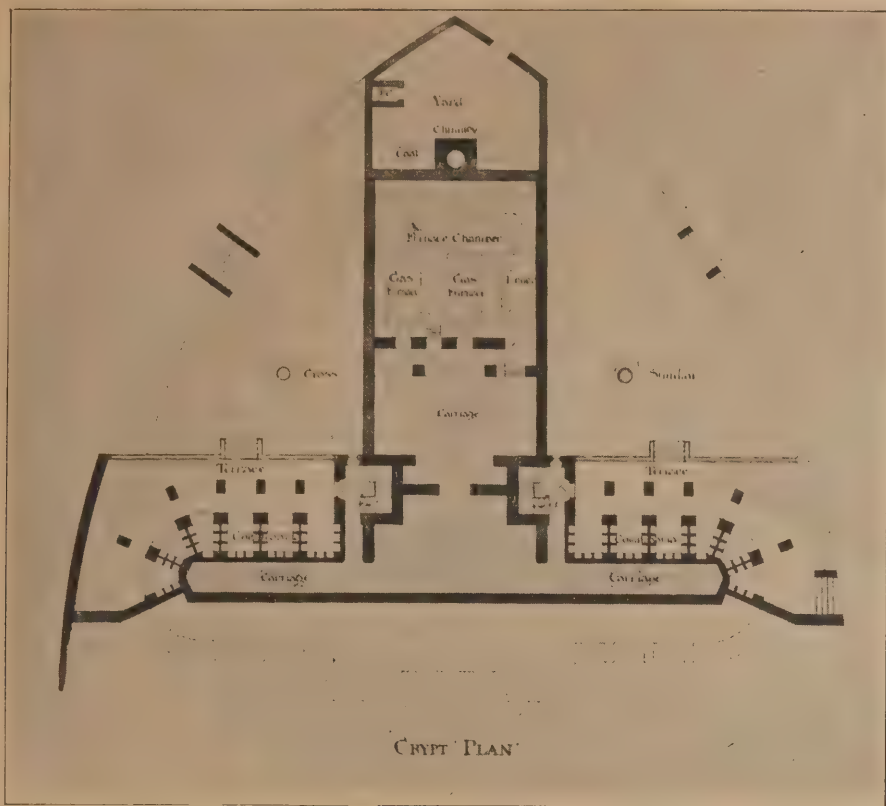
which he liked because of the bold manner in which it was treated. But when they came to the garden front he must say that, although Wren was one of the greatest architects of all the ages, if it was shown, without the prejudice attached to Wren's name, to any one of them they would say it was rather tame and flat in every respect. Coming outside to the gardens, there they had a fine lesson in laying-out the land around, and it was finer and more complete in the original plan than now. It was intended to be a regular garden of box borders with seven fountains in it. He had always thought the garden a singularly fine example of the treatment of the surroundings of a house.—Mr. W. H. Seth-Smith seconded the vote of thanks.—Mr. Percy Hunter said Hampton Court was of great interest both historically and architecturally. It was astonishing that such a mansion should have been built by a man like Wolsey, who, if tradition was true, was the son of a butcher. The most remarkable thing was that within the space of 160 years they found such an enormous development in learning generally and in the conditions of society, that a palace which was so magnificent for Wolsey and Henry VIII. was so utterly behind the age for William III. Hampton Court, therefore, only existed in its complete and original form apparently for 160 years. With regard to the alterations he certainly could not help adding his protest against

WREN'S EXTRAORDINARY VANDALISM.

It was most regrettable that he should have destroyed so much of what would have been so interesting if it had been spared. He not only pulled it down, but did not leave a record of what he destroyed. If he had left a plan of it, it would have been of great interest now. He understood there was a vague plan, but certainly no details. Architecturally, the building that mostly interested him (the speaker) was the chapel. He had tried to picture to himself what it was like before Wren touched it; or, perhaps, not then, but when it was pulled to pieces in the time of the Civil Wars. But in what condition did



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. SECOND PREMIATED DRAWING. BY MESSRS. NICHOLSON AND CORLETTE.



NOTTINGHAM CEMETERY BUILDING COMPANY. MESSRS. ROBSON AND NEWBERRY.

Henry VIII. leave it? He had often wondered how the east end was finished off. It was supposed that a great oak screen, with Corinthian columns, occupied the middle covered-up space, behind which now was a large staircase, a part of the new building, but he often wondered if it consisted of a couple of large windows or one east window. Speaking of

THE IRON WORK.

Mr. Hunter expressed the opinion that it was not of one design, as had been stated, for there was an immense difference in the delicacy and refinement of the gates in the east front, leading into the gardens, and the ironwork of the King and Queen entrance, called the Lion gates. The colour used in painting the gates was most unfortunate, because it reflected the light and interfered very much with the appreciation of the delicacy of the moulded work. As to the chimneys he would advise architects, when they went to Hampton Court, to seize the opportunity to get on to the roofs. He knew no more picturesque scene, for there they got the perspective view of the old Tudor roofs. When they contrasted that view with what they would get from the Wren roofs, he did not think there would be any doubt as to the verdict upon the question of the chimneys. — Mr. Belcher briefly replied.

A SPECIAL committee of Aberdeen Town Council have resolved to recommend the erection of a Corporation slaughter-house at Central Park, Kittybrewster, at an estimated cost of about £30,000.

It has been decided to restore the ancient Norman tower of the Parish Church of St. Mary's, Dover, at a cost of £1500, to be followed by an enlargement of the church at an estimated total outlay of £6000. The tower was constructed about 800 years ago, and is a very interesting specimen of Norman Architecture.

A new pulpit, erected to the memory of the late Bishop of Wakefield in the Church of St. Mark, Noel Park (the Shropshire Mission), has been dedicated. The pulpit was designed by Mr. Rowland Plumbe, and erected by Messrs. Jones and Willis. It is of Caen stone; the panels are divided by arches supported on dark marble shafts. Under one of the arches is a figure of St. Mark, and it is proposed to fill the other spaces with figures of St. Chad and Bishop How when funds permit.

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THE ARCHITECTURE OF LIVERPOOL TOWN HALL.

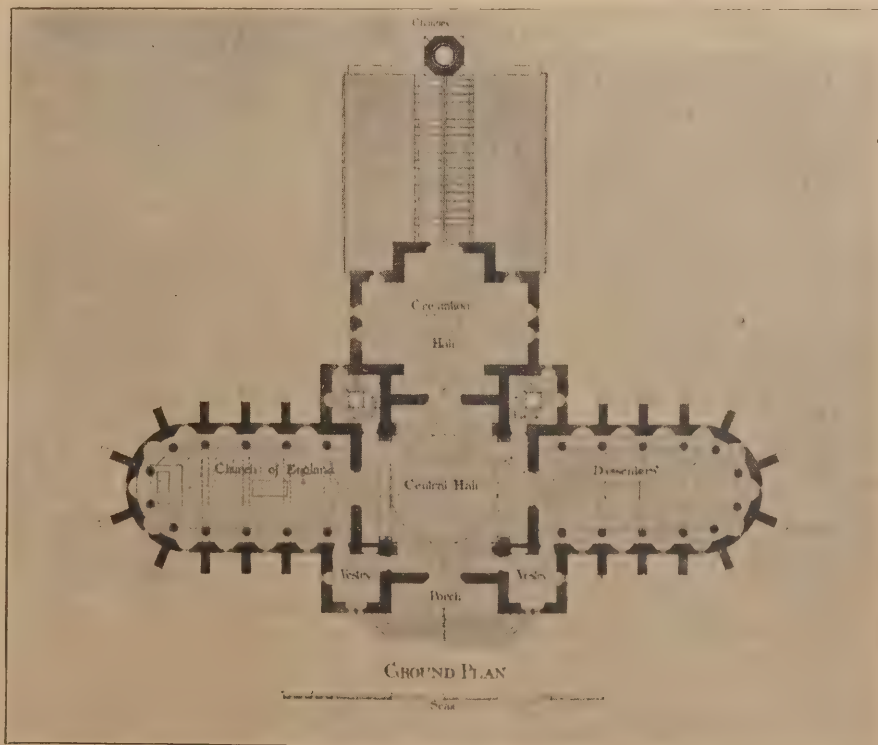
"IN THE STYLE OF A DOCK-WALL."

SOME amusing remarks were made at a recent meeting of the Liverpool City Council—observations which are a fair sample of the differences of opinion existing amongst the members of local government authorities when dealing with architectural subjects. Sir Thomas Hughes moved the Finance Committee's recommendation—"That the tender of Messrs. Alexander White and Sons, Duke

Street, Liverpool, for painting and decorating the whole of the rooms on the upper floor, including the grand staircase, at the Town Hall, in accordance with designs, description and specification submitted by them, for the sum of £3098 12s. 9d., be accepted, the amount to be spread over a period of four years." This was seconded by Alderman Radcliffe, who said it was the highest tender, and its amount was originally £4598, but it was discovered that much of the gold work did not need renewing, and simply required to be touched up. The designs submitted by Messrs. White were on the screen in the chamber. They had been seen and approved of by Mr. Anning Bell, of the University College, and they were undoubtedly the best submitted.—Mr. Rutherford said the Town Hall was neither large nor imposing. The style of Architecture might be called "mixed." The lower one-third was in

THE STYLE OF A DOCK WALL.

the middle portion was bastard classical, and the whole edifice was topped by a kind of imitation of the upper part of a Turkish mosque. The interior on the ground floor was inconvenient and draughty, and the tea-room for the councillors resembled an interior back yard. If the committee's proposition had been to pull down the whole building, he would have voted for it. The designs of the proposed decoration were in the Council chamber. In one of them they had dukes and duchesses dancing a minuet in two-century-old costume. If the dukes and duchesses and the elegant furniture were taken from the designs, the Council would arrive at exactly what was to be done for the £4000. He suggested that an artist be employed to make a design, and then tradesmen asked to send in tenders to carry out the work of decoration. There were at least half-a-dozen artists of reputation in Liverpool who could produce a satisfactory scheme. The decoration of the Town Hall of Liverpool ought to represent the best work of its citizens. If they wanted examples they had them in the Hotel de Ville, in Paris, and in Madox-Brown's paintings in the Town Hall of Manchester. Let them have an artistic scheme, and not merely relegate the work to decorators. Having got a design to cost, say, £3500, they could ask tradesmen to tender on a perfectly fair footing.—Mr. Burgess said that no architect or artist in England would endorse the observations of Mr. Rutherford as regards the Town Hall. Artists of note had spoken of the architectural features of the building in a very



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. BY MESSRS. ROBSON AND NEWBERRY.



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. BY MESSRS. ROBSON AND NEWBERRY.

different way. If the present decorations were carried out, they would last for fifty years.—Mr. R. D. Holt thought the Town Hall was

ONE OF THE PRETTIEST ARCHITECTURAL BUILDINGS

and handsomest municipal halls to be found anywhere. He felt that the style in which the hall was decorated at present was not in keeping with the architectural features of the building. It was rather of a vulgar style. The designs now submitted, he thought, were a repetition of the old style. The rooms, being rather dark, ought to be embellished by light decoration. He suggested that the Finance Committee call in an expert to advise them. The decorations should not be put into the hands of house decorators, but should be done on artistic and high-class lines.—Sir Arthur Forwood thought white and gold would be the most suitable decoration.—After further discussion, an amendment, proposed by Sir Arthur Forwood, was carried, referring the recommendation back, asking the Finance Committee to call in an expert, and authorising them to spend £4000 on the decoration, Messrs. Holt, Willink, and John Lea being requested to assist the committee in this matter.—Mr. Meade-King said it would be a mistake to tie the hands of the Finance Committee to £4000. Give the committee a sufficiently free hand that they could do something permanent, and of which the Council would be proud.—Upon the amendment being submitted as a substantive motion, it was carried by 37 to 34.

PLANS were prepared for the erection of a new church in St. Philip's parish, West Bromwich, at a cost of some £7000. A modified scheme has now, however, been approved, and by leaving out the south aisle and the vestries the cost has been reduced to £3700.

THE London County Council has confirmed a recommendation of the Building Act Committee for the erection of a new printing factory and offices on the south side of Tallis Street, Whitefriars, between John Carpenter Street and Carmelite Street, not to exceed in height the distance from the front or external wall on the opposite side of each of the streets upon which the building will abut.

METHODS OF HEATING AIR.

By W. N. TWELVETREES.

MR. W. N. TWELVETREES, M.I.Mech.E., recently read a paper on "Some Methods of Heating Air," before the Civil and Mechanical Engineers Society. The subject is one which not only frequently engages the professional attention of engineers and architects, but is of a direct personal interest to the inhabitants of this country, where varying climatic conditions render necessary considerable care in the design and installing of heating and ventilating apparatus. The paper was illustrated by numerous diagrams demonstrating the manner in which certain natural laws directly affect the questions of heating and ventilation, and showing the various systems adopted and some of the defects, frequently causing failure in practice. The most popular means of obtaining artificial warmth is

THE ORDINARY OPEN FIRE,

described by Mr. Twelvetrees as "the most cheerful, enjoyable, and wasteful form of heating appliance," in which radiant heat alone (equal to about ten per cent of the total heat of combustion) performs useful work in imparting warmth to the room and its occupants. Owing to the laws of radiant heat, the warmth so imparted is necessarily variable, inasmuch as the number of heat rays intercepted are inversely proportional to the square of the distance, and also vary in a ratio inversely proportional to the angle of incidence. Heat escaping up the chimney is not entirely wasted, as it performs useful work in promoting ventilation. Enclosed stoves, imparting heat both by radiation and contact, may communicate to an apartment as much as 90 per cent. of the total heat produced. It is important to note that due precaution must be taken to guard against overheating, which by decomposition of floating matter in the air forms deleterious compounds. It is desirable to make use of evaporating pans to provide the necessary amount of humidity. Ventilating apparatus must be arranged so as to ensure the equal distribution of warmed air. The primitive mode of ventilation, as Mr. Twelvetrees pointed out, "was simply to provide a hole in the top of a room, and this

system is still practised amongst uncivilised nations and in most of our chapels and churches." After commenting upon various modifications of this original device, the author illustrated a system arranged so as to be applicable to the requirements of both winter and summer ventilation. Having discussed the system in which stoves are employed for heating air which is afterwards distributed by conduits to the various parts of a building, the author passed on to the consideration of hot water and steam as a means of imparting heat.

THE HIGH-PRESSURE SYSTEM,

although possessing many features of excellence and convenience, is liable to unexpected increase of pressure occasionally resulting in accidents, and this risk, combined with the fact that the high temperature of the pipes tend to vitiate the air by decomposition of floating particles, somewhat militate against the more general use of the system as ordinarily employed. Under somewhat modified conditions, the employment of the high-pressure system was advocated. There is no reason, he remarked, why safety should not be insured, and the pressure kept within reasonable limits. Working pressures, varying from 10lb. to 20lb. per square inch, are frequently sufficient for all practical requirements, and in public institutions the waste heat from steam boilers may be utilised for heating the water, which is then used for washing purposes and for providing the necessary temperature in drying rooms, &c. The low-pressure system and some causes of imperfect water circulation were illustrated by diagrams and calculations. The most fertile cause of failure was attributed to want of care in estimating the height of columns necessary to provide the motive force for circulation. This cannot be arrived at by guesswork or rules of thumb methods, especially in complicated systems, as the conditions for equal lengths of pipe vary considerably in accordance with the initial and terminal temperatures and other circumstances. As exemplifying this point in a striking manner, Mr. Twelvetrees made calculations for two circuits, each with an assumed length of 500ft., in which, whilst the terminal temperatures differed by no more than 20deg. F., the necessary heights of the columns was shown to vary by as much as 19.3ft. As a means of heating steam possesses decided advantages, being readily

applied, and capable of effective control. Reference was made to the advantages to be derived from the use of exhaust steam. The use of a feed water heater, as a rule, absorbs barely one-fifth of the exhaust steam, and the other four-fifths are wasted. It is true that by using the remainder for heating purposes a certain amount of back pressure would be created in the engine, but, as the energy directly derived from an ordinary engine represents only about 25 per cent. of the thermal value of the coal, whilst 75 per cent. is contained in the exhaust steam, the drawback of the slight back pressure is more than counterbalanced by the saving effected. The gravitation system is one in which steam circulates from the boiler, returning in the form of condensed water. This arrangement has the merits of being extremely simple, and is worthy of more general attention on the part of the engineers. After treating of the employment of steam on the high pressure expansive system, Mr. Twelvetrees gave some interesting particulars relative to American practice, in connection with steam installation of a large scale for the

HEATING OF TOWNS AND CITIES.

One example given maintained in four miles of 10in. pipes and 6in. pipes, notwithstanding drafts for power and heat, along the lines. In this case remarkable precautions are taken to reduce condensation, which is less than two per cent. per mile, arrangements are also made for reducing the pressure of the supply to consumers on the most complete and approved scale. In England we have already public installations of gas and water, electricity and hydraulic power, and there seems no reason why a system of steam supply should not also be adopted. A reduction in the number of independent furnaces could not fail to exercise a beneficial effect on the atmosphere in large towns. Passing to the question of radiating surfaces, reference was made to the most suitable forms of radiator and heating coils. He deprecated the use of empirical rules as ordinarily adapted by fitters of heating appliances, and proceeded to show that the proportion of heating surface with regard to the duty required, should be calculated on a scientific basis. Having decided the mean temperature desired, the loss of heat by the building should be computed; the thermal units per hour required should then be calculated from the specific heat and

specific gravity of the air; the heat unit furnish per square foot by a given form of radiating surfaces should be ascertained by calculations, in which the chief factors are the radiant power and temperature of the material. The figures must be corrected by radio deducted from the experiments of Drelong, Pécelet, and others. It is then easy to find accurately the amount of surface requisite, and in the case of buildings exceptionally subject to cold, either by reason of situation or of defective construction, a further margin of heating surface should be provided.—The paper was followed by a discussion in which part was taken by the President (Mr. H. Covard), Mr. T. C. T. Walrond, Mr. B. B. Dadley, Mr. Brewster, Mr. Cooper Penn, and others.

The General Purposes Committee of the Blackpool Corporation have sanctioned the expenditure of £40,000 upon the extension of the electricity works.

The foundation stone has been laid of a new infectious diseases hospital which is to be erected at Sealand, about a mile from Chester, at a total cost of about £20,000.

The church of St. Mary-the-Virgin, Aldermanbury, E.C., is about to be entirely redecorated from the designs of Mr. Lewis E. G. Collins, of 31, Great St. Helen's, E.C.

The building fund in connection with the proposed new church for All Saints, Weston-super-Mare, has been started. Mr. G. F. Bodley, R.A., the architect of the reredos in St. Paul's Cathedral, is now making preliminary arrangements.

A strong organization of artists has been formed for the purpose of forming in London an exhibition, or a series of exhibitions, of "the finest Art of our time," without regard to nationality. The executive council includes the names of Mr. Whistler and Mr. Alfred Gilbert, R.A., among many others.

The Carpenters' Company has arranged the programme of the winter course of lectures, which began on Monday. They are more especially addressed to those interested in Architecture and building, and will be fully illustrated by experiments and lantern illustrations, and by diagrams, &c. The names of the lecturers are Professors Silvanus Thompson, Banister Fletcher, T. Roger Smith, Mr. Lewis F. Day, and Dr. Longstaff. Sir John Lubbock and Sir Arthur Blomfield have consented to preside on two evenings.

KEYSTONES.

A new mission chapel has been erected at Thorverton, Devonshire.

A STAINED-GLASS WINDOW has been erected in St. Mark's Church, Sheffield, to the memory of the late vicar, Archdeacon Favell.

PLANS have been prepared for the new concert and recreation hall at West Kirby. The architect is Mr. Edmund War.

THE British Archaeological Association will hold its next summer meeting at Peterborough. The proceedings commence on the 14th of July.

THE Watch Committee of the Halifax Corporation have accepted tenders for the erection of a new court-house and police-station on the site of the old infirmary in Harrison Road. The total estimated cost of the building is £12,734 3s. 3d.

THE Gas Committee of the Birmingham Corporation recommend an outlay of £336,000 for the reconstruction of existing works and the provision of additional works, capable, when the alterations and extensions are finished, of providing an extra supply of 10,000,000 cubic feet of gas per day.

PLANS have been approved for the erection of a block of shops and houses at Dysart, Scotland. The elevation is in the Scotch baronial style, of which there are many old examples in Dysart, and, with the projecting bar-windows and cross-stepped gables, will make a decided improvement to the street Architecture. The architects are Messrs. A. and A. C. Dewar, Leven.

It is stated that it has been decided to hold at Earl's Court, from May to October next, a universal exhibition, intended to illustrate the inventions, industries, manufactures, and applied arts of today. An endeavour will be made to render it international in its scope, and sections have been devoted to France, Germany, Russia, Austria, Hungary, Switzerland, Turkey, Bosnia, and the United States.

For some time the platforms at Dundee Tay Bridge Station have been found inadequate, and to meet growing requirements extensions have been determined on. Plans for these have been prepared, and as soon as certain necessary arrangements are completed the work will be proceeded with. It is proposed to extend the platforms on each side of the "dock" a distance of about 40yds. to the westward.



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. BY MESSRS. ROBSON AND NEWBERRY.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
February 23rd, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Bootle Town Council has accepted the report of the referee upon the competitive plans for the new fire station. Mr. C. J. Anderson, 36, Dale Street, Bootle, who designed the new police-court buildings, receives the first award, and Messrs. Briggs and Wolstenholme, 3, Lord Street, Liverpool, the second.

THE trustees of the Birmingham Church Fund have decided to invite a limited number of architects to compete for the erection of a new church in the parish of Sparkbrook, in place of Christ Church, Birmingham. They have appointed Sir Arthur Blomfield, A.R.A., assessor, and the following have been invited to compete:—Messrs. Bateman and Bateman, W. H. Bidlake, J. A. Chatwin, R. Creed, John Douglas, Wm. Henman, H. E. Lavender, M. Macartney, Edward Mansell, Temple Moore, F. B. Osborn, and T. F. Proud. Nine of the twelve invited architects practice their Profession, and the others are men of special position in connection with ecclesiastical work.

THE designs submitted by Mr. Jackson, R.A., and Mr. Brock, R.A., for the Benson Monument in Canterbury Cathedral, having been accepted by the committee of the Memorial fund, the two Academicians have begun the execution of the work. Good progress with it, indeed, has already been made, especially in the main structure, which part of the commission is in the hands of Mr. Jackson. Those who have seen the designs say that the memorial will be an imposing structure. The recumbent effigy of the late Primate, which is being done by Mr. Brock, will represent him in an attitude of prayer.

At a recent meeting of the Barnsley Town Council the plans of the proposed new opera house, to be erected in Eldon Street, were approved. The plans, which have been prepared by Mr. John P. Briggs, of 1, Arundel Street, Strand, London, show an imposing building of stone. The site is a particularly good one, and allows of three sides open to the roadway. Seating accommodation has been provided for 1400. The theatre will be fire-proof throughout, and provided with electric light. The whole of the auditorium, entrances, saloons, and dressing-rooms will be heated by hot water. The important subject of ventilation has been carefully considered, and several new and novel features have been added.

THE Admiralty has decided to make an important extension to the Royal Naval Barracks, Devonport, by the erection of the officer's quarters and other buildings for 1000

officers and men, thus enlarging the barracks to twice their present dimensions. The Admiralty has accepted the tenders of Messrs. Matcham and Co., Plymouth, who constructed the present barracks fifteen years ago. The outlay, including the furnishing of officers' quarters and a handsome mess hall and fitting up quarters for seamen and stokers, will amount to a quarter of a million sterling. The work is to be completed in three years.

A MOVEMENT is on foot to restore the crooked spire of Chesterfield Church. In January there were some boisterous winds, and snap in two went a stay, which, apparently, was of as sound wood as need be. The steeple has undergone a thorough inspection by Mr. Temple Moore, of London, who, in a report, says:—"No structural repairs of importance have been done to the spire within the memory of anyone living, and the recent accident (in which an important timber was broken and forced out of position) is quite sufficient to show that it is impossible to place any reliance upon many of the timbers, and that it is imperative that the work of overhauling and restoring the spire should be undertaken at once, or it should be taken down."

THE huge advertisement boards elevated on posts which disfigure the fields and woodlands bordering the railways are bad enough to the æsthetic sense, but there is a worse terror in store—the advertising windmill, a specimen of which is now being erected in a meadow near a North London junction. The windmill is substantially constructed of wood and iron, and is painfully permanent in appearance. Long arms project at convenient elevations from the centre pole, which is about 30ft. in height, and to these are attached highly-coloured advertisement boards, 8ft. or 10ft. square, and slightly curved to catch the wind.

MR. G. A. T. MIDDLETON has selected the Hartz district of Germany for his annual Continental sketching tour this Easter. The district is by no means so well known to English architects as it deserves to be, lying just aside from the main route to Berlin, and full of most interesting work which is frequently compared with that of Nuremberg and other Bavarian towns. The party is to start from England on April 6th, and to be absent for ten days, the cost, ten guineas, being by no means excessive considering the distance to be travelled, and the high educational value of such a tour taken in the company of experienced draughtsmen. We are hoping to give a series of illustrated articles descriptive of the places visited when the tour is over, and should be glad to receive line tracings of sketches made by any members of the party, from which to select illustrations. Mr. Middleton having promised to place any sketches which he may make at our disposal for the purpose, and to contribute the letterpress. A party of at least thirty will be needed this year to make the event a financial success, no rebate on the ordinary railway fare being obtainable for a lesser number. Places are already booked for a small party of those who have taken part in former tours, and no doubt the desired thirty will soon be secured.

THE London County Council, at its meeting last week, received a report on the proposed new Vauxhall Bridge. Since the last design for a steel-arched bridge was rejected in July, 1897, the chief engineer has given the subject his unremitting attention, and has endeavoured, within the limits imposed upon him by the estimate, to meet the views of all parties by preparing a design which will give, as far as can be expected, general satisfaction. After mature deliberation and a visit to similar structures on the Continent, and conferring with the engineers engaged in their construction, he has prepared a design embodying the principle on which his predecessor constructed the Thames embankments, namely, a granite bridge backed with concrete. If this is adopted the structure will have the appearance of a granite bridge, and it will be possible to erect it like Waterloo or London Bridge. Moreover,

the heaviest loads will be able to pass over it, and the annual expense of painting will be saved, resulting in an economy of at least £1000 per annum. The structure will also be practically permanent. Similar bridges have been constructed over the Danube, the Neckar, and the Rhone, with equal spans to, if not larger spans than, those proposed at Vauxhall, and have been tested in the most severe manner by passing over them locomotive engines weighing as much as 78 tons. In recommending the Council to approve this design, the Bridges Committee stated that at present it was proposed that the bridge should be faced with red and grey granite of various tints in such a manner as to bring out the features of the work in pleasing relief. The bronze lamp fittings and the designs for the top or finials of the columns were indicated in a general way upon the sketches, but might be modified if the general structure was approved by the Council. An amount had been set aside for the ornamentation of the bridge. They, however, did not propose to leave the pedestals unfilled, but intended to deal with the matter and to report upon it after the Council had approved of the general design. In deliberating upon the subject they had had the benefit of the advice of those gentlemen who objected to the proposed steel arch bridge, and in presenting the present design they believed that if the bridge were constructed in accordance therewith it would prove to be one of the handsomest bridges over the Thames. The Parliamentary estimate for the cost of the bridge was £380,000. By the adoption of the present design some £20,000 would be saved.—The consideration of the report was adjourned.

THE London County Council has considered a report from the manager of the Works Department, containing a return of completed works not yet reported to the Council and of works in progress. Of the works commenced during the late management and completed in 1897, but not yet measured, it was reported that the original estimate was £3375, and the actual cost, subject to audit, £4018 1s. 9d. The works commenced during the late management and still in progress were originally estimated at £166,948 16s. 11d., while the total expenditure and liabilities incurred to December 31st last amounted to £162,501 17s. 5d. Works commenced and completed during the new management were estimated to cost £4923, and the actual cost, subject to audit, was reported to be £3434 7s. 8d. The original estimate of works commenced during the new management and still in progress was £97,414, and the actual cost and liabilities incurred to December 31st last was £37,389 9s. 6d. The concluding table in the manager's report dealt with works completed, certified, and ready for inclusion in the next half-yearly statement. The original estimate of these works was £16,066 16s. 8d., the revised estimate £13,788 17s. 10d., and the actual cost £10,438 19s. 9d., showing a cost below estimate of £3349 18s. 1d.—Lord Onslow moved an amendment for the reception of the report with the exception of a clause containing the works manager's statement. The proposition was rejected, and the report adopted.

"THE Cost of Building Forty Years Ago and Now," was the subject of a paper recently read before the Architectural Section of the Philosophical Society of Glasgow, by Mr. George Eadie. Mr. Eadie took two tenements of 35ft. 6in. frontage, four stories high, consisting of three houses on each stairhead, two room-and-kitchen houses, and one of a single apartment, and compared what it would take to erect these houses now against what it cost forty years ago. Such tenements' brickwork, in 1857, would cost £953 9s. 4d., and in 1897 they would cost £1310 7s. 10d. In 1857 the wright work would cost £826 17s. 6d., against £868 18s. in 1897; slate work, £38 16s. 2d., against £49 7s. 8d.; plumbing and gas work, £141 19s., against £117 12s. 8d.; plaster work, £168, against £240 12s. 10d.; smith work, £25, bells, £20, street and sewer work, £35—total £74, against £80. Such tenements forty years ago would cost £2273 18s., while to-day they would cost £2751 7s. That was an increase of

21 per cent. Wages had doubled within forty years, while materials had increased 58 per cent. A house which was rented forty years ago at £8 15s. now fetched £10 15s. Forty years ago two rooms and kitchen houses brought £15, now they realised £22; forty years ago three rooms and kitchen houses brought £24, and to-day they realised £28. In erecting a building to-day there were the building regulations to be taken into consideration, while the modern improvements, such as electric bells, register grates, hot and cold water, etc., meant extra money, which was not expended forty years ago.

MR. ONSLOW FORD seems to have been most unfortunate with the blocks of marble obtained by him from Italy for the statue of Huxley, commissioned by the Memorial Committee. The work was put in hand a year ago, and after it had been proceeded with for some time a blue vein was discovered in the marble, with the result that it had to be discarded and a fresh block ordered. This also proved to be unsound, and the sculptor has therefore had to await a third piece from Italy. Of course, there is now no chance of the statue being seen in the Royal Academy this summer, and it will probably be at least two years before the monument is placed in its final position in the Natural History Museum at South Kensington.

THE knucklebone order of Classic Architecture is not recognised in orthodox works, and is probably unknown to most people. But it may be found in the little village of Cley-on-Sea, on the north coast of Norfolk. Most of the walls are built of flint cobble stones, but on the cornices of one or two of the houses various bones of sheep have been introduced with a very quaint and not unpleasing effect. The knucklebones in one case are a sort of classic ornament under a projecting cornice, and in another case they are arranged round a panel of cobble stones embedded in cement. The appropriate title of Knucklebone Hill is locally given to these bone-decorated houses.

MR. G. F. BODLEY, of Messrs. Bodley and Garner, architects, who are engaged upon the restoration work now in progress at Stratford-on-Avon Parish Church, visited Stratford a few days ago for the purpose of meeting the committee at the church. The work had been at a standstill at one spot for some days, pending Mr. Bodley's arrival, owing to an interesting discovery. This was where a new arch is being constructed between the south transept and the south aisle for the purpose of carrying the organ pipes through. As the workmen were engaged in removing the solid stone wall, the arch being 13ft. wide, they lighted upon an Early English lancet window embedded in the wall. A portion of the moulding had been removed for the purpose of bringing the wall to a level surface, and all traces of the window were concealed by the overlying cement. The history of the rest of the building makes the origin of the window quite clear. It was evidently once a light from the outside into the transept, this portion of the church being older than the aisle, and when the latter was built the window became unnecessary and was accordingly filled up. The window has been covered up between 500 and 600 years, and was a thing of the past centuries before Shakespeare came to be christened.

THE Globe's Venice correspondent writes: "The Castello of Udine, a great, square, ugly building of three centuries ago, now used as barracks and civil prisons, stands on the site of the ancient castle, on a great mound of earth thrown up, tradition and Bædeker tells us, by Attila, whence he could watch at his ease the burning of Aquileia. The other day it was found necessary to repair a part of the foundations of an inner wing. On the flooring being removed, the workmen came upon a small, massive, tight fitting stone trap-door. It was raised with difficulty, and it disclosed, as in romances, a flight of steps. On going down it with lights, the workmen found themselves in a subterranean chamber. From one corner of

this ran a passage, in the walls of which were five low narrow doorways, opening into the most horrible prison-cells imaginable. The doorways still held the heavy iron hinges, which had supported enormously thick doors, as shown by the depth of the stone framework. At the end of the passage two other cells were found, suggestive of still more deadly suffering; for, while the others are of ordinary size, these only measure 2ft. 4in. by 2ft. 8in.—a size that made it impossible for the unhappy wretches confined in them to lay down.

THE Bluecoat School in Palmer Street, Westminster, is now a school no longer; but the old building, in the Wren style, erected in 1709, has been purchased by the Westminster Vestry, and will in future provide additional accommodation for the staff, and at the same time the space around the building will allow of a much-needed widening of James Street. In this connection the vestry has issued a notice in which they say that, "while declining to bind themselves to preserve the said building," they will "endeavour to do so if circumstances permit." This is one of the rare instances in which any official body has thought fit to consider for a single moment the claims for existence of a picturesque old building.

THE Lord Provost's Committee of Edinburgh Town Council has had under consideration the scheme for the reconstruction of North Bridge Street. As the result, it was decided that the ground should be exposed to auction in five lots—the west side of the street in two lots, and the east side in three. It was further remitted to the town clerk, with a small advising sub-committee, to bring up a report as to the method in which the gross upset price of £230,000 should be allocated over the five lots.

A REPORT has been prepared by Mr. C. C. Lindsay, M.Inst. C.E., and presented to the members of Glasgow Corporation, on the proposal to bridge Glasgow Harbour at a point below the new Broomielaw Bridge. Mr. Lindsay submitted particulars of a semi-high-level viaduct at Hydepark Street, with two alternative low-level bridges at Finnieston Street or at West Street. The estimated cost of the high-level viaduct and approaches, exclusive of the cost of property or the way-leave required, would be £200,000, while the estimate for a low-level bridge, also exclusive of property and way-leave, would be £109,000. Further consideration of the scheme has been postponed.

ON the occasion of her second lecture of the course on "Delphi" Miss Harrison, at the Passmore Edwards' Settlement, showed the famous bronze charioteer, and stated that it was 1'8 metres in height—i.e., about life-size—and that it was found under a Roman conduit in a square building above the temple of Apollo. It probably owed its fine state of preservation to the fact that it was concealed under the debris of an earthquake in the fourth century B.C., the same earthquake as that which destroyed the temple of the Alcmaeonidae. The sacred temenos of Apollo was next examined. It occupied an area of 20,000 square metres—i.e., between four and five acres; the peribolos wall is in part intact, and, as the angles are preserved, can be clearly made out. It is in part of polygonal, in part of "Hellenic," masonry. The principal landmarks within the precinct are the great temple of Apollo with the altar at the east front, the theatre, the Lesche of Cnidus (in which were the famous frescoes of Polygnotus), the fountain of Cassotis, the portico and treasury of the Athenians (in which last was found the hymn with the musical notation), and the treasures of other cities, notably of Sicyon and Cnidus. These, together with the course of the Sacred Way, the pavement of which is still preserved, enabled us to follow in great part the periegesis of Pausanias. Immediately on entering the precinct Pausanias noted the votive offering of the Lacedæmonians after the battle of Ægospotami. Of this the basis

and many of the inscriptions are preserved, though the statues were probably carried off by Constantine. Pausanias noted no fewer than thirty-eight of these statues by name, and all were the work of artists of high repute. Plutarch also, in his dialogue on the Pythion Responses, said of a distinguished visitor to Delphi, that, weary though he was of the guides and their long-winded tales, he was deeply impressed by the sea-blue patina of these statues of the admirals, which made them look as if they stood "ocean deep." Passing through a perfect forest of votive bronzes Pausanias arrived at the two treasuries of Sicyon and Cnidus.

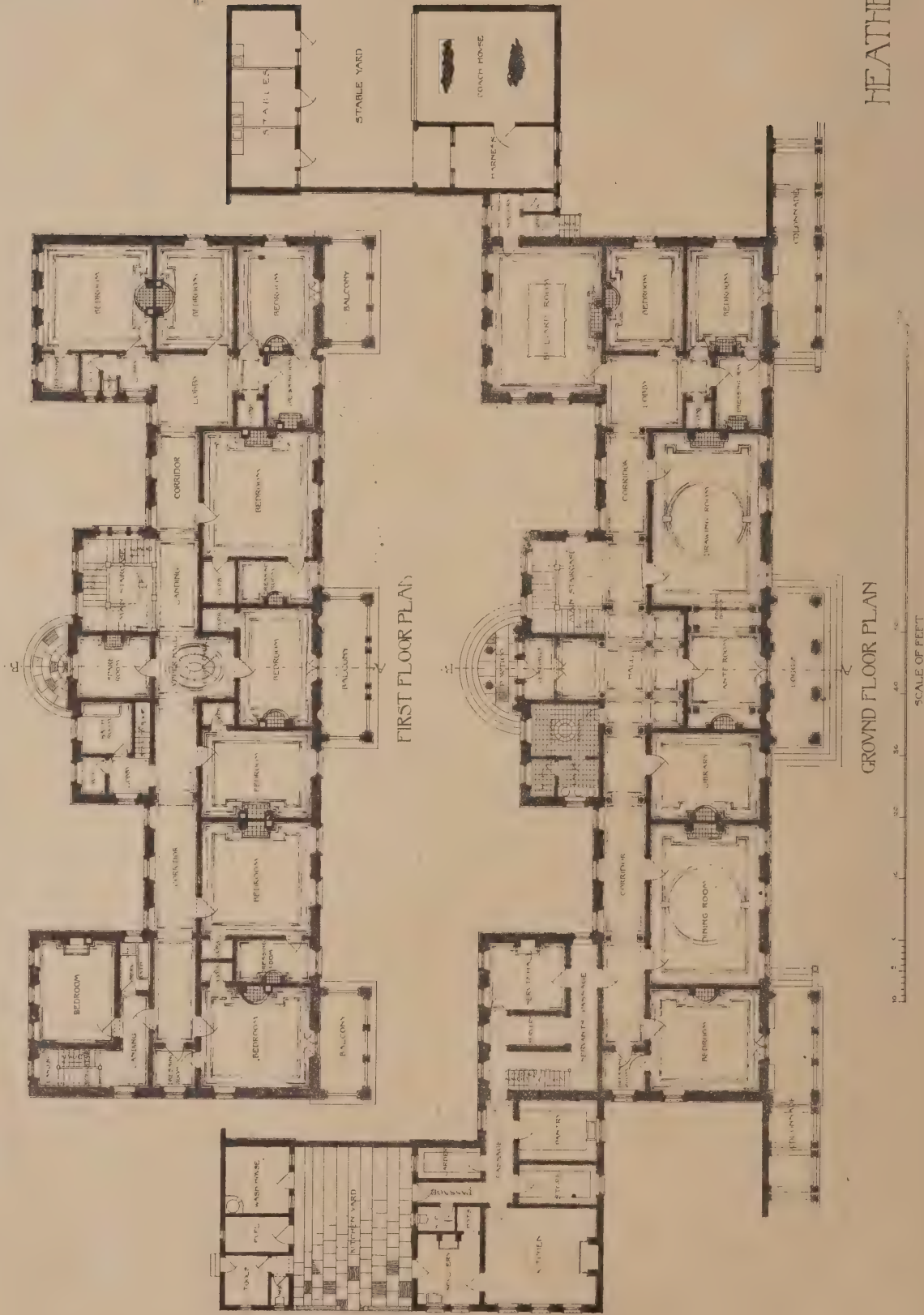
THE work of restoring the spire and turrets of Salisbury Cathedral, which has been in progress during the past two years, is now almost completed, and it is expected that in the course of the next few weeks it will be entirely finished, and the scaffolding, which at the present time envelops the tower and a large portion of the spire, will be removed. The committee, consisting of the Dean and Chapter of Salisbury, and the leading laity in the diocese, have been actively engaged in arranging for the tower and spire to be made safe for future generations, and to preserve in its integrity this beautiful example of cathedral Architecture. The work has been carried out under the direction of Sir A. Blomfield, and in a recent report to the committee he informed them that the turret at the north-west of the cathedral was in such a bad state that it was needful to take it down. It has been rebuilt. The work, Sir A. Blomfield said, was one of great difficulty, but it has been accomplished in the most workmanlike and satisfactory manner. Every stone that could be reused appears again in its proper place, only new stones being introduced wherever the original stonework has been crushed, broken, or in such small stones as to be unsafe. The turret staircases at the four angles of the tower, which have to support so much of the enormous thrust of the spire, have been thoroughly repaired and strengthened. On all four sides defective masonry has been taken out and replaced by new stones weighing in some cases upwards of a ton. The foundations of the south aisle and of the west side of the south transept have yet to be repaired. Altogether the cost of the work will be about £15,000.

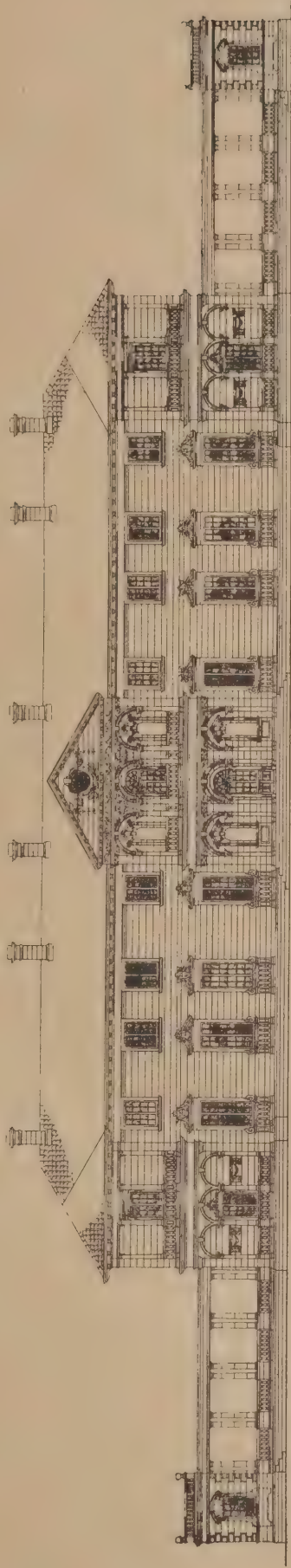
At a meeting of the Ludlow Town Council, Mr. Lear said he had seen an article maintaining that the oil painting in the Council Chamber which had been restored was after all a portrait of James II. He should like to know who it really represented. Mr. Tyrrell said he had seen several pictures of William III., and the nose on the picture was William's. James II. had a flat nose. The Mayor remarked that there was a resolution on the books that it was William III., and until it was proved otherwise it must remain so. Alderman Smith suggested inscribing the name William III. on the back, and that of James II. on the front. Mr. Tyrrell pointed out that the cleaning had changed the monarch from James II. to William III. Amidst laughter it was decided to stick to William III.

THE London Technical Education Board has made a special grant of £1000 towards the erection of the new workshops for masons' and plasterers' classes, which are to form part of the buildings associated with the great hall of the Battersea Polytechnic. The buildings are to be proceeded with at once. The hall is designed to seat about 1000 persons, and the estimated cost is £6500.

"T. E. W." writes to suggest that Mr. Thomas Thornycroft's Boadicea "could not be better placed than on the top of the middle gate entrance at Hyde Park Corner. It would then be, to a certain extent, out of sight of all imperfections, according to Mr. Harry Quilter's ideas. The gates on either side might, in time, find contributions in keeping, and thus make Hyde Park Corner somewhat more artistic."

THE TITE PRIZE COMPETITION 1897-98
A DESIGN FOR AN ITALIAN VILLA &
ORNAMENTAL GARDEN IN ENGLAND

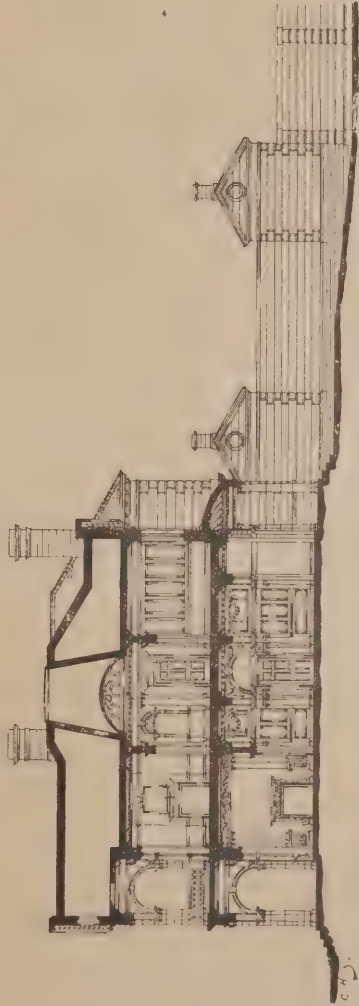




ELEVATION TO GARDEN



ELEVATION OF MAIN TERRACE



SECTION ON LINE A-B

THE TITE PRIZE COMPETITION 1897-98.
A DESIGN FOR AN ITALIAN VILLA &
ORNAMENTAL GARDEN IN ENGLAND.
ELEVATIONS AND SECTION.

H. E. A. THER

THE annual exhibition of water-colour drawings in the gallery in Old Bond Street is always one of the most agreeable shows of the year. In the exhibition now open Messrs. Agnew have made an innovation which greatly increases the attractiveness of the collection. They have covered a screen with a number of beautiful miniatures, most of which will be recognised as having belonged to the celebrated collection shown by the late Mr. Edward Joseph at the Burlington Fine Arts Club in 1889. The water-colours include drawings by Turner, David Cox, De Wint, Copley Fielding, Sir A. W. Callcott, and William Hunt; by Frederick Walker, D. G. Rossetti, Sir E. Burne-Jones, Mr. Alma Tadema, and Miss Mary Gow; by Fortuny and Edouard Détaillé. These are a few out of many. We might add to them landscapes by that delightful artist of the pre-Turner days, J. R. Cozens, by Alfred Hunt, and G. P. Boyce.

It is proposed to build a church for 700 persons in the parish of St. James, New Brighton, to replace the temporary building at Upper Brighton, and £3000 is already available towards the cost. Another proposal is the erection of an additional church in St. John's parish, Egremont, at the bottom of Trafalgar Road, overlooking the river, the site for which has been secured. Other items in the proposed extension movement are a new church in the Wallasey parish; a new church for St. Mary's, Liscard, to replace the old mission house in the village; enlarged mission rooms in St. Paul's parish, Seacombe; and a new church in Poulton Road.

THE thirty-seventh annual exhibition of the Royal Glasgow Fine Art Institute contains a great variety of good work, and includes pictures by Reynolds, Landseer, 'Isaiah', Orchardson, Millais, Corot, and James Maris. A notable feature of the exhibition is the display of portraits. Whistler's "Lady in Fur Jacket" is a prominent work, and Graham Robertson has an artistic decorative portrait of Mrs. Patrick Campbell. In the water-colour gallery works by J. M. Swan, the late Stacy Marks, Clara Montalba, C. Walton, and J. G. Laing adorn the walls. There are also sculpture and architectural galleries.

FOR some time past the church of St. Peter's, at Barton-on-Humber, with its old Saxon tower, reputed to be one of the oldest churches in the kingdom, has been undergoing the process of restoration. Recently an interesting discovery was made. There is a very curious little building on the west side of the Saxon tower, which has been rather puzzling to the many antiquarians who annually visit the church. Permission was obtained from the vicar and churchwardens to investigate, and accordingly Professor Brown, of Edinburgh, in company with Mr. C. H. Fowler (Durham) superintended excavation on the east side of the tower. After digging about 4ft., they found indications of a similar building to that on the west side of the tower. The foundations are about 16ft. square, and go to prove that the old tower stood in the middle of these two buildings. One could almost imagine that it was used as a place of defence as much, if not more, than as a place of religion. That it was occupied by armed men in very early days is ascertained from the evidence gathered from various stones in the building, which show the marks where the archers sharpened their arrows.

A REMARKABLE building is in process of erection on a plot of ground in Carr's Lane, Birmingham, which for a quarter of a century has remained unoccupied. Three feet beneath the surface of the ground there runs a tunnel of the Great Western Railway, and as the tunnel could not with safety bear more weight than it now does, all plans for building on the ground have been condemned by the city surveyor and the railway engineer in consultation. By an ingenious device, however, an architect has now prepared plans whereby a three-story building is to be erected on the site. Twenty-five feet of building will have to project over the tunnel, and as no weight is to

rest on the tunnel, this has to be erected on huge cantilevers. These cantilevers, six in number, run to a depth of 6ft., and are estimated to carry weights varying from 100 to 400 tons. The A cantilever supports the greatest weight, estimated at 400 tons, and is calculated to support a strain of 875 tons. The A1 cantilever will support 375 tons of the building, while only 19ft. of it under the building will rest upon a solid foundation. To add to the safety, from this hangs a mass of concrete, 16ft. across by 15ft. high, and weighing 160 tons, suspended by steel bars 22ft. long. The whole thing resembles the weighing of a carcass on a butcher's steelyard; the cantilever acts as the steelyard, the warehouses and the shops are supported at the long ends, and the great weight of concrete hangs from the short one, acting as a counterpoise, while the cantilever rests upon a bed of concrete.

THE rebuilding of the Old Bailey is to be put in hand at an early date. The City Lands Committee have had a conference with the Home Secretary to secure his final approval of the plans and details of the reconstruction. It is not intended to make any alteration in the prison part of the Old Bailey. The rebuilding will be confined entirely to the Sessions House, which has for many years been totally inadequate as a court-house. The delay that has occurred is not due to the Lands Committee, who control all the buildings and property both in and outside the City that belong to the Corporation. The plans of the new Sessions House were long ago submitted to the Home Secretary and approved of by him, and then, as an act of courtesy, laid before the judges who sit at the Old Bailey. Here it was the delays occurred, on account of the number of alterations in the plans desired by some of the judges. But now it is understood the plans have been approved by all those interested.

By a curious coincidence, the two engineers who will advise upon and superintend the structural alterations that are to be made in the event of the new Crystal Palace proposals taking effect are sons of two men who were largely concerned with the fortunes of the Palace in its earliest days. Sir Charles Fox was the engineer who designed the building when it was originally erected in Hyde Park, while Mr. John Douglas Cooper arranged its sale to the original Company and its removal to Sydenham Hill. Sir Douglas Fox and Mr. V. B. D. Cooper have now been called in, not on account of their family associations with the Palace, but, by an interesting coincidence, to take in hand the structure with which their father's names were so closely connected.

THE annual distribution of prizes, &c., to the successful students of the Royal Female School of Art, took place recently at Merchant Taylors' Hall, the awards being presented by Lord Ronald Sutherland Gower. The Rev. Prebendary Whittington read the 37th annual report, in which the committee tendered their grateful thanks to the Queen for her Majesty's continual support to the school, and for the encouragement given to the students by her purchase this year of a study from life by Eveline M. J. Howell, which obtained the Queen's gold medal, and a design by Bertha Smith, which obtained a national silver medal at the annual examination and award of prizes at South Kensington. During the past year 122 students had received instruction in Art. On April 1st last 469 works were sent to South Kensington for examination and competition for awards. The number of works sent up for examination for national competition was as follows:—50,255 from 281 schools of art and branch schools, 35,560 from 298 science schools, and 11,796 from 449 art classes. Of these 5853 were selected for national competition. The Queen's scholarship was awarded to Mary F. Bill, the Mercers' scholarship to Ethel M. Mullins, the Clothworkers' scholarship to Eveline M. J. Howell, the William Atkinson scholarship to Mildred Jackson, the Brightwen scholarship to Rosamond Watson, and the National Gilchrist scholarship to Marianne

Edwards. The meeting was addressed by Mr. R. T. Pritchett, the Rev. Sydney Probert, Dr. Phené (Clothworkers' Company), Mr. George Baker (Merchant Taylors' Company), Mr. L. J. Carlidge, Mr. E. Phené Spiers, Mr. C. Foster Hayward, and Dr. Garnett.

WOLVERHAMPTON has resolved to have a new coat of arms. It has been discovered that the present armorial bearings of the town do not represent true heraldry, and are unauthorised by the College of Arms. The Council has decided to ask "That a memorial be addressed to the Earl-Marshal of England, praying him to issue his warrant to the Kings at Arms for their granting and assigning such arms and crests as may be proper to be borne by the corporation and their successors according to the laws of arms." The fees for the new insignia are set down at £76 10s. The motto of the town, "E tenebris oritur lux" ("From darkness light arises"), is appropriate to its present awakening.

WINTER by winter London has been steadily growing darker, and the cause of the mischief increases annually. It is not the clouds, but the smoke. The result is that many painters are leaving town, or, while retaining their London houses, are doing their work in the country. Portrait-painters, of course, must have their headquarters in town—the others have their studios out of London. We shall have no more palaces built with studios in the art districts. For, strangely enough, the art districts are the very ones that suffer most. When Melbury Road was colonised, the light was good. When Holl and Pettie carried a little northward, up to Fitzjohn's Avenue, the tradition which in the sixties treated St. John's Wood as pre-eminently the artists' quarter, dark days, one steadily succeeding another, were not dreamt of. But now Hampstead itself is as dark in winter as Bayswater, and Kensington as gloomy as Knightsbridge. The number of large houses with studios grows on the agents' hands year after year, not because more are built, but because few are let.

THE Rev. F. W. G. Wix, vicar of St. James's the Great, Bethnal Green, in appealing for £4000 with which to carry out necessary work of restoration, says: "The church is practically unfit for Divine service. There are great holes in the roof—the stonework will have to be renewed—and such things as lead work, pipes and gutters, &c., are either gone or broken. Internally the plaster has fallen down from the ceilings—damp and mould disfigure the walls—a heating apparatus must be supplied, and considerable alterations in the arrangements will have to be carried out."

CHICAGO appears to possess in Henry H. Engelhardt an artist before whose rapidity of production the achievements of the Langham Sketching Club must pale into insignificance. He paints entirely from memory, and devotes the whole of his genius to landscapes in oil. A picture 22in. by 10in. is completed in nine minutes, while a smaller one can be conjured into existence in three minutes, and he works from ten to seventeen hours a day. According to a writer in an American newspaper, this prodigy recently undertook, for a wager, to paint 150 landscapes in nine hours, and actually completed 152, all of them "marvellously clever paintings." After this we are not surprised to learn that he claims to be "the champion catch-as-catch-can painter of the universe." His pictures range in price from 75 cents upwards; but, being overwhelmed with orders from picture-dealers, he threatens to raise the price of his higher-class paintings to 24 dollars a dozen. "I must do something to protect myself," he says, "against these fellows who have gone mad over Art. There is no passion more dangerous and absorbing, and unless it is checked harm is liable to come of it." What becomes of these gems of Art after they leave his hand he does not know, but he "opines that they are given signatures of some more or less celebrated man and are sold at prices several hundred times greater than their original cost."

Surveying & Sanitary SUPPLEMENT.

FEBRUARY 23RD, 1898.

POLICE STATIONS AND PRISONS.

By GEORGE H. BIBBY, F.R.I.B.A.

IV.—RESIDENCES FOR CONSTABLES. (Continued from Vol. VI., page xlvii.)

IN former times the gatehouses or bars of fortified cities frequently contained apartments for the accommodation of the watchmen or police of the period, and even so late as thirty years ago this custom survived at York, where the bars of the city remained in habitable condition, and where it is not unlikely they may still be so occupied. Some of these bars contained apartments on two or three floors above the gateway, and have afforded sufficient accommodation in modern times for a constable and his family. The areas of the windows of these buildings were usually larger on the city side of the walls, and not mere slits in the walls, as is the case at Micklegate Bar, York. It may be noted that the two doors shown high on the frontage were to give access to outworks, long since removed.

The police of the Metropolis formerly were composed of the aldermen, councilmen, constables, and others connected with the various wards, and these acted as night-watchmen in turn. This arrangement of police is said to have been continued from a very early period, with modifications from time to time, and until the formation of the modern police system. John Timbs, upon this subject, wrote as follows: "In the metropolitan parishes without the City the watch was chiefly under local acts, the establishment in each consisting of a beadle, constables, and generally head boroughs, street-keepers, and watchmen, as in the several wards of the City, but working to a result much worse, the petty constables being served by deputies, in many instances characters of the worst and lowest description, having no salary, but living by extortion, and countenancing all species of vice. To abolish such a system Sir Robert Peel's Metropolitan Police Act of the 10th George IV., ch. 44, was passed, superseding the Bow Street foot patrol, and the whole of the parochial police and watch outside the city, by one force for day and night duty." The horse patrol was added in 1836, and the Thames Police in 1838, when the old detective force was superseded.

Another gatehouse prison was built in the time of Edward III. as the principal approach to the monastery at Westminster. It stood at the western entrance of Tothill Street, and consisted of two gates, the southern leading out of Great Dean's Yard, and used as a lodging for felons. On the east side was the Bishop of London's prison for "clerks-convict." The rooms over the other gate adjoining formed a prison for State, ecclesiastical, and parliamentary offenders, prisoners from the Court of Conscience, as well as for debtors and felons, but the latter are said to have been brought through Thieving Lane and Union Street, so as to avoid the precincts of the liberties of Sanctuary.

It will therefore be observed that the ancient custom of placing watchmen's, or police stations

at or near to the gates of towns and cities was a convenient arrangement inasmuch as criminals or suspected persons would frequently be recognised when attempting to "enter" a town, and for this reason it was an obviously convenient arrangement that provided a residence for the watchmen, combined with cell

of a married constable, with one or two cells, to the extensive buildings required for the accommodation of a large number of married and single constables, with parade yard, stabling for mounted police, and superintendents', inspectors', and sergeants' quarters.

A station-house upon a small scale may be



FIG. 7. MICKLEGATE BAR, YORK.

accommodation for prisoners, near to the bars or gates of cities.

In these days, police stations are to be found not only in towns, but in remote country districts, and with greatly varying accommodation, from the small station-house in charge

arranged as shown on Fig. 8, where is given a plan in which the office and cells, &c., are fully separated from the constable's cottage. This plan provides, on the ground floor, an office, with a special entrance from the street; a couple of cells, entered from a passage at the

rear, to prevent noise from the cells reaching the office, and with a yard and w.c. at the back. The constable's cottage has one good living room, with scullery, pantry, and w.c., and large yard (a small garden might well be added in country districts). On the first floor are three bedrooms, and a cupboard or store closet. It should be observed that on this plan the wall adjoining the station is arranged without any windows, thus preventing to some extent sounds reaching the bedrooms from noisy or drunken prisoners in the cells below.

The passage to the cells would be lighted by skylights in the roof, and the constable in charge would be able to inspect his prisoners, without disturbing them, through the inspection openings in the cell doors. Of these, details are given in Fig. 9, with other constructive details officially suggested, while Fig. 10 gives other details for the ventilation of the cells (see also Figs. 1 and 3).

It is one of the official requirements that, in arranging accommodation for the police, the prisoners' cells and the administrative part of the police station should be separate from the part in which the police reside, and the accommodation for the married constables and their families should be distinct and separate from that provided for the single constables.

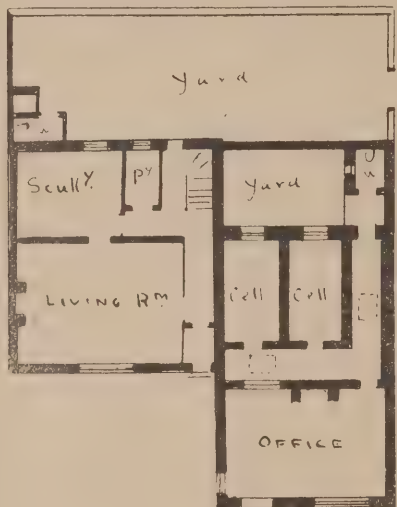


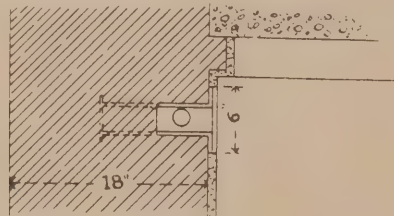
FIG. 8. GROUND PLAN.

The accommodation for a superintendent should provide him, usually, with two sitting-rooms, kitchen, scullery, larder store, four bedrooms, dressing-room, a floor space of about 1660ft., water closet, and coal store, &c.

For an inspector or sergeant it is officially required that there be provided one sitting-room, kitchen, scullery, larder, three bedrooms, a floor space of about 1100ft., water closet and coal store, &c.

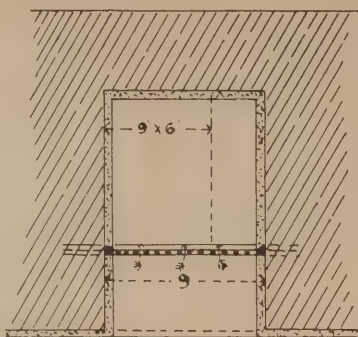
The accommodation for a married constable need not, usually, give more than a living-room or kitchen, scullery, larder, three bedrooms, a floor space of about 900ft., w.c. and coal store, &c.

In the single men's quarters there should be provided, according to numbers, mess and day-rooms, kitchen, scullery, cellars, bedrooms, bath and lavatory, clothes-room, brushing and cleaning-room, drying-rooms or closets, boot-rooms, w.c.'s and urinal.

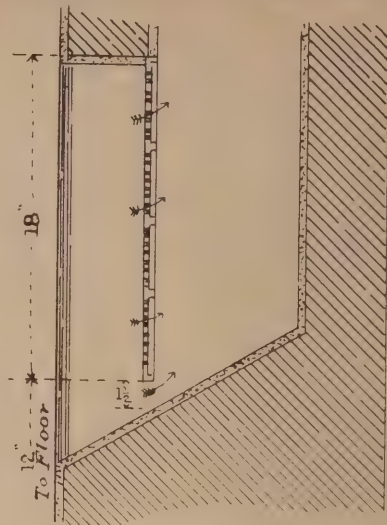


SECTION.

DETAIL SHOWING CHASE FOR SERVICE PIPE TO ONE W.C.



PLAN.



SECTION.

FIG. 10. DETAILS OF GRATING AT MOUTH OF EXTRACTION FLUE.

In the official list of requirements, no mention is made of baths or bath-rooms for the superintendents and other higher members of the force, but the addition of these appears to be as necessary for officers as for men.

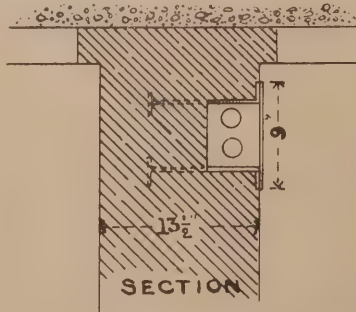
In the single men's quarters the bedrooms should be on the upper floors, and divided into bunks by partitions, which need not exceed 7ft. in height, 600 cubic feet per man at least should be allowed; the under and private clothing of the constable should be in a small cupboard in, or near to, the bunk.

The following further official requirements must also be provided for:—The bath and lavatory should be on the same floor as the bedroom and close to it, but with independent ventilation; the baths should have a supply of hot and cold water, and be provided in the proportion of four per cent.; the lavatory basins in the proportion of fifteen per cent. The clothes-room, brushing-room, and drying-room should all be situated not far from the entrance, but cut off from it, and arranged close together; the clothes-room should have ample space for hanging uniforms in use, and be provided with means for warming; the brushing and cleaning-room may occasionally be arranged as a passage near the drying and clothes-rooms, it should be well lighted, and be furnished with tables or benches for the cleaning of clothes, belts, &c., and have a lavatory basin; the drying-room should be very efficient, and should always be in operation on wet days, so that it can be used without delay or inconvenience by a constable coming in from duty, instead of small drying-rooms. Drying horses might be fixed in the usual way in closets, and thus a higher temperature could be maintained than would be possible in an open room. Boot-rooms, with racks for four pairs of boots per man, should be fixed at a little distance from the living-rooms. There should also be a space for cleaning dirty boots, with means of warming in order to dry the boots. The mess-room should be sufficiently large to allow of at least two-thirds of the men dining together comfortably and conveniently. It should be bright and well ventilated. For small messes, say up

to six men, there need be no second day-room, but for from six to twenty men there should be a second day-room. If more than twenty men, there should be a mess-room, a recreation-room, and a library for reading and writing, the last being never more than 20ft. by 15ft., and in a quiet position. The chief points to be attended to in the designing of these rooms is that they should be bright, above ground, and provide perfect comfort and relaxation to the men using them. The kitchen should be near the mess-room, yet distinctly cut off from it. All the cooking for large messes should be done in it, and not in the mess-room. Cellarage and other storage may be found in the basement, if it be necessary to construct one; every apartment should have inlet and extract ventilators. The water or earth closets should be in the yard, and provided at the rate of 5 per cent. of the inmates. Every closet should be well lighted, the urinals should be of slate, and five compartments per cent. allowed for the use of residents. If the number of men for night duty exceeds five or six, a parade shed, sufficiently large for the convenient parading for inspection, should be provided in the yard. In important stations the shed should be completely inclosed, and it should have ample means of lighting, the width being not less than 15ft.

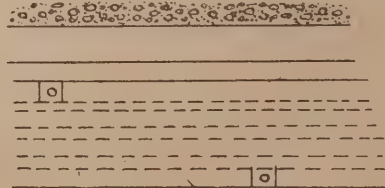
The provision of cottages or flats for the married constables should certainly afford all the privacy that can be reasonably attained. By keeping men in such buildings as barracks or hospitals, &c., we can doubtless feed and warm them more scientifically, but to attempt such provision for the police and others would be unnecessarily destructive of home life and surroundings, and perhaps of those hours of repose and leisure, which by many can only be secured by retirement from the society of other officials.

The most perfect arrangement of the country policeman's cottage and station is when they stand apart from other buildings. In this way the utmost privacy that the condition of the constable admits of would be afforded, but, unfortunately, considerations of economy interfere too greatly with such arrangements.



SECTION.

DETAIL SHOWING CHASE FOR SERVICE PIPES TO TWO W.C.'S



PART ELEVATION

FIG. 9.

The garden, if any, should be as much as possible in front of the police station cottage, and be placed with due regard to sunshine. A garden in front is frequently better tended and kept neater than one not to be seen from the public road. The garden may be fenced by a hawthorn hedge, or better by a low wall, along which the hardier fruit-bearing shrubs—the currant, gooseberry, or raspberry—may be trained, and the same plants may intersect the garden, dividing it into compartments; also useful trees may find a place, as the apple, pear, plum, &c., while flowering shrubs, as the woodbine, the lilac, and rose, may be trained to the cottage station wall. Let not such things be churlishly neglected or withheld, even from police cottages—they are calculated to humanise the dispositions of all, and to compensate liberally for the labour we may bestow in our care of them, and afford a healthful occupation for vacant hours. Therefore, while the city policeman may (by official provisions) have recreation-rooms and a library, the isolated village constable may well be granted a little garden land in connection with his country police station.

(To be continued.)

A LOCAL Government Board inquiry has been held at Armagh with regard to the application for sanction to the loan of £12,000 for sewerage works.

A LOCAL Government Board inquiry has been held at Sheffield into an application by the Corporation for sanction to borrow £14,633 for works of sewerage, £6600 for the conversion of privies into water closets, and £3894 for purposes of street improvements.

THE Sanitary Institute has just opened a course of lectures at the Parkes Museum on the following subjects: Sanitary Law, Supervision of Food Supply, Trade Nuisances, Infectious Diseases, Water Supply, Ventilation, Building Construction, House Drainage, Sanitary Appliances, Scavenging, and Disposal of House Refuse and Sewerage.

HASTINGS proposes to add to its borough debt about £148,000 for carrying out the various public works the corporation have decided upon. Upwards of £139,000 is required for a water supply scheme, it having been resolved to tap the Brede Valley. The remainder of the money will be expended in works of sea defence, the erection of more covered seats on the front, street improvements, and other matters.

DOCK CONSTRUCTION AT BARRY.

THE No. 2 Dock at Barry is near completion. The last of the foundations for completing the sill walls has been laid, and there remains only the work of excavating a little mound at the dock bottom before water will be

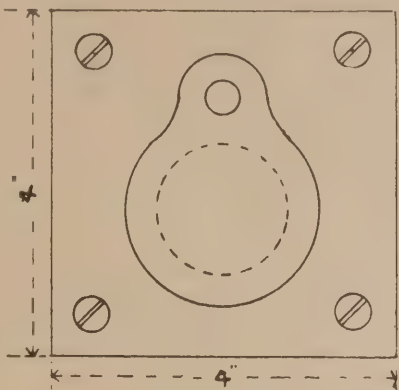


FIG. 9A. ELEVATION OF INSPECTION PLATE ON DOOR.

let in through the sluices in the new caisson that at present stops inflow from the old dock. The contractors are Messrs. Price and Wills, whose local agent is Mr. R. Hollowday. The

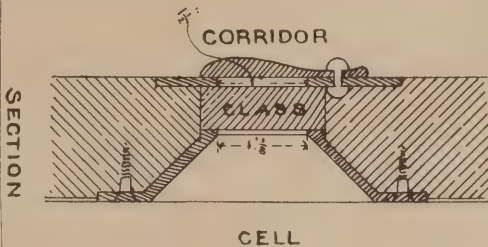


FIG. 9B.

total length of the dock is 3300ft., and on the north side has ten high-level tips of an improved kind, a valuable improvement being the fact that no "wells" are necessary for the

hydraulic machinery. These have in the old dock occasioned fatal result in the case of accident to workmen. The tips have been supplied by Messrs. Tannett, Walker, and Co., and the approaches constructed by Messrs. Keys and Co., of Birmingham, are of iron, those at the other dock being of wood. The large caisson between the two docks is being built by Messrs. Robert Stevenson and Co., of the Tyne, the firm who built the deep water lock gates. The large number of hydraulic capstans and cranes that are required are being laid by Sir William Armstrong and Co. Five of the tips are at the present time nearly completed, and are connected by railways running obliquely from the main line to the north; and between the last two tips perpendicular walls have been built to afford a space for the future construction of a moveable tip similar to that in use at the present time at the other dock. The work of excavation has proceeded very rapidly from the commencement, the contractors being favoured with suitable weather almost throughout, the mud banks being removed when the ground was frozen, and literally carved out; and as an indication of the amount of work done it will be sufficient to state that three and three-quarter million cubic yards of debris has been removed, the chief portion being placed slightly to the south, and now forms the quayage space, 700ft. wide, upon which capacious warehouses will be erected, in addition to a crane road, sidings, and highway. The timber pond is to be located on the moors directly to the east of the dock, and from here about 30,000 cubic yards of debris will have to be excavated, and this work is now commenced. At the dock bottom the anchorage for eleven buoys have been laid, and these are supplied by Messrs. Brown and Lenox, of Pontypridd. In the extreme south-east corner is erected a large hydraulic engine-house, in which are being set up two powerful engines with four boilers, room being provided for double this power if necessary. The stack for this house will form a landmark to mariners in substitution for Warren Tump, being near the place where this large mound stood, and, being 120ft. high, it may be easily seen from the Channel. At each of the four corners of the dock a hydraulic accumulator is placed, one of these being already in use. The only work of any magnitude that remains to be done is that of completing the waterway between the Nos. 1 and 2 docks.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Feb. 26	Canterbury—Erection of Refuse Destructor, &c., Buildings	Corporation	City Surveyor, 23, St. Margaret's-street, Canterbury.
" 26	Clova, Scotland—Erection of Stone Bridge	Forfar County Council District Committee	D. Ross, Road Surveyor, Giebe-terrace, Kirriemuir.
" 26	Cupar, Scotland—Erection of Six Cottages	Fife and Kinross District Lunacy Board	Resident Clerk of Works, Lunatic Asylum, Cupar, Scotland.
" 26	Bolton—Additions to Workhouse	Union Guardians	T. Greenhalgh, 12, Nelson-square, Bolton.
" 27	Wolverhampton—Swimming Bath and Assembly Hall	Parks and Baths Committee	J. W. Bradley, Borough Surveyor, Town Hall, Wolverhampton
" 28	Cymmer, Wales—Extension, &c., to Chapel	Hall Committee	W. Ree, Grocer, High-street, Cymmer.
" 28	Kirkpatrick-Fleming, Scotland—Public Hall		G. D. Oliver, 3, Lowther-street, Carlisle.
" 28	Nevin, Wales—Erection of Church		F. S. Gregory, Architect, High-street, Bangor.
" 28	Penygroes—Erection of Chapel		J. Davies, London House, Penygroes, Llandebie.
" 28	Troedrhifwuch, Wales—Erection of Thirty-one Houses	Building Club	S. J. Phillips, Secretary, Troedrhifwuch Inn, nr. Tredegar.
Mar. 1	Malvern—Erection of Sanatorium, &c.	Hospital Committee	Committee's Surveyor, Malvern.
" 1	Longridge—Erection of Five Houses	Co-operative Society Ltd.	W. Munford, 33, Guildhall-street, Preston.
" 1	Douglas, Isle of Man—Enlarging Post-office	Commissioners of H.M. Works	12, Whitehall-place, S.W.
" 1	Bangor, Wales—Erection of School	Governors of Friars School	Douglas and Minshall, 6, Abbey-square, Chester.
" 1	Bromley, Middlesex—Alterations, &c., to Asylum	Managers	J. and S. E. Clarkson, 136, High-street, Poplar.
" 1	Clwtybont, Wales—Converting Schoolhouse, &c.	Llandemioien School Board	R. A. Jones, 14, Market-street, Carnarvon.
" 1	Moretonhamstead, Devon—Convalescent Home	School Board	E. Richards, 3, Park-crescent, Torquay.
" 1	Moulton—Alterations to Schools	Royal Infirmary Committee	C. Dorman, Architect, Northampton.
" 1	Windsor—Additions to Institution	Urban District Council	G. P. Castland, High-street, Windsor.
" 1	Leyton—Brick Boundary Wall and Sheds	School Board	W. Dawson, Town Hall, Leyton.
" 2	Cardiff—Erection of School, &c.	School Board	Habershon and Fawckner, Architects, Pearl-street, Cardiff.
" 2	Thornbury, Yorks—Erection of School, &c.	Corporation	S. Fudge, Architect, Thornbury, Yorks.
" 2	Southend-on-Sea—Wing to Pier Buildings	Union	A. Fidler, Borough Engineer, Southend-on-Sea.
" 2	Norwich—Alterations to Museum	North Eastern Railway Co.	J. B. Pearce, 15, Upper King-street, Norwich.
" 2	Blaydon-on-Tyne—Erection of Engine Shed, &c.	School Board	W. Bell, Central Station, Newcastle-on-Tyne.
" 3	Llanelli—Erection of Schools	Awelwyn Building Club	J. B. Morgan, Architect, 17, New-road, Llanelli.
" 3	Penydaren, Merthyr, Wales—Twenty Dwelling-houses	County of W. Sussex	J. Williams, Morgantown, Merthyr Tydfil.
" 3	Worthing—Sub-Police Station	Rev. F. Healey, P.P.	R. S. Hyde, Eriswell-road, Worthing.
" 4	Gortin, Ireland—Erection of Church	Industrial Co-operative Society Limited	E. J. Toye, Architect, Strand, Derry.
" 4	Stalybridge—Erection of Fifteen Houses	Commissioners of H.M. Works	General Office of the Society, Grosvenor-st., Stalybridge.
" 4	Birmingham—Erection of Building		Office, 12, Whitehall-place, S.W.
No date.	Bradford—Erection of Boiler House, &c.	J. Smetham	F. Hoiland, 11, Parkinson's-chbrs., Hustlergate, Bradford.
"	Gwynfi, Wales—Erection of Church		E. H. Bruton, 15, Queen-street, Cardiff.
"	Harrogate—Erection of Offices		Whitehead and Smetham, Albert-chambers, Harrogate.
"	West Ardsley, Yorks.—Alterations, &c., to Boyle Hall		C. S. Nelson and R. N. Savage, 15, Park-row, Leeds.
"	Wortley, Leeds—Re-erection of School		G. F. Wilkinson, 35, Park-square, Leeds.
"	Newport, Isle of Wight—Erection of Hall		E. A. Swane, 30, Nodehill, Newport.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Saville Town, Dewsbury—Stone Church	Conservative Club	C. J. Ferguson, 42, Clareville-grove, South Kensington, S.W.
"	Epsom—Club Premises		F. W. Ledger, 8, Philpot-lane, E.C.
"	Ashington, Durham—Additions to Church		Hicks and Charlewood, 42, Grainger-st., Newcastle-on-Tyne.
"	Middleton, near Wardle—Cottage Homes	Rochdale Union	Butterworth and Duncan, 4, South parade, Rochdale.
ENGINEERING—			
Feb. 26	Hunslet, near Leeds—Sewage Works	Rural District Council	S. Shaw, C.E., Dewsbury.
" 28	Bridport—Erection of Bridge	Rural District Council	J. J. Roper, 74, East-street, Bridport.
" 28	Buckie, Banffshire—Deepening, &c., Harbour	Fishery Board of Scotland	Engineer, Office of Public Works, Oban.
" 28	Reife, Brazil—Harbour Improvements and Docks, &c.		Legation of Brazil, London.
" 28	Dorking—Oil Engine, Ram Pumps, &c.	Water Company	J. Mansergh, 5, Victoria-street, Westminster.
March 1	Southwold, Suffolk—Erection of Bridge	Corporation	H. Miller, 16, Musum-street, Ipswich.
" 1	Desborough—Well, Heading Engine, &c.	Urban District Council	J. B. Everard, 6, Millstone-lane, Leicester.
" 1	London, E.C.—Conveyance of C. I. Sleepers, &c.	South Indian Railway Co., Ltd.	J. Allan and Sons, 110, Leadenhall-street, E.C.
" 2	Middlesbrough—Extension of Dock	North-Eastern Railway Company	Sir J. W. Barry, 21, Delahay-street, Westminster.
" 2	Pallion, near Sunderland—Construction of Bridge, &c.	North-Eastern Railway Company	C. A. Harrison, Central Station, Newcastle-on-Tyne.
" 2	Crondall, Hants.—Water Tower, Wells, Pumps, &c.	School District Managers	A. Ansell, 21, Buckingham-street, Strand, W.C.
" 3	Scrabster, Caithness, Scotland—Extension of Harbour	Harbour Trustees	J. Barron, 156, Union-street, Aberdeen.
" 3	London, E.C.—Pillar Water Cranes	H.H. the Nizam's State Ryds. Co., Ltd.	W. G. Hall, 50, Old Broad-street, E.C.
" 4	Salford—Widening Bridge, &c.		Borough Engineer, Town Hall, Salford.
" 5	Northwich—Construction, &c., of Electric Lighting Plant	Weaver Navigation Trustees	J. A. Sauer, Engineer, Weaver Navigation, Northwich.
" 5	Pembroke, Ireland—Electric Lighting Plant	Lighting Committee	R. Hammond, Ormond House, Great Trinity-lane, E.C.
" 5	East Ashford—Driving Bore Hole	Union	H. Knock, New-street, Ashford.
" 8	London, S.E.—Supply of 4 Sanding Machines	Lambeth Vestry	J. P. Norrington, Vestry Hall, Kennington Green, S.E.
" 8	London, E.C.—Electric Cables, &c.	Shoreditch Vestry	H. M. Robinson, Clerk, Town Hall, Old-street, E.C.
" 9	Belfast—Electric Wiring Police Cells	Corporation	T. A. H. McCow, Electrical Engineer, Marquis-st., Belfast.
" 10	Hereford—Iron and Steel Bridge Work	Victoria Bridge Executive Committee	J. Parker, Engineer, Mansion House, Hereford.
" 12	Dorstone, Hereford—Carriage Bridge	County Council	H. T. Wakelam, County Surveyor, Shire Hall, Hereford.
" 12	Copenhagen, Denmark, Dynamos, Accumulators, &c.		Frederiksberg Sporveis-og Electricitets-Akieselskab, Gamme Kongerig No. 140, in Copenhagen V.
No date.	Tadcaster—Dynamo and Wiring		Old Brewery, Tadcaster.
"	Uttoxeter—Water Supply Boring	Rural District Council	F. S. Hawthorn, Clerk, Uttoxeter.
"	Wakefield—Steam Mains, Valves, Pumps, &c.	West Riding County Council	J. V. Edwards, County Surveyor, Wakefield.
IRON AND STEEL—			
Feb. 26	Thorpe, Norfolk—Supply of Water Pipes, &c.		G. Smith, Clerk of Works, The Asylum, Thorpe.
" 28	Birmingham—Supply of Welded Steel Pipes	Corporation	J. Mansergh, 5, Victoria-street, Westminster, S.W.
" 28	Brighouse—Supply of Iron Tubes, &c.	Gas Committee	Gas Engineer, Mill-lane Works, Brighouse.
Mar. 1	Ashby-de-la-Zouch—Cast-iron Mains	Urban Council	G. and F. W. Hodson, Engineers, Ashby-de-la-Zouch.
" 1	London, S.W.—Railway Waggon	Secretary of State for India	Director-General of Stores, India Office, Whitehall, S.W.
" 2	Christiania—Wire and Iron Posts	Norwegian State Ryds. Administration	Commercial Department, Foreign Office.
" 2	Watford—Iron and Pipe Sewers	Urban District Council	Offices, 14, High-street, Watford.
" 2	Ryde—Cast-iron Socket Pipes	Corporation	C. Matthew, Town Hall, Ryde.
" 2	Camberwell, S.E.—Supply of Various Stores	Vestry	O. S. Brown, Surveyor, Vestry Hall, Peckham-road, S.E.
No date.	Carlisle—Supply of Cast-iron Pipes	Corporation	H. C. Marks, 36, Fisher-street, Carlisle.
PAINTING AND PLUMBING—			
Feb. 28	Hornsey, N.—Painting Hospital, &c. (2 Contracts)	Urban District Council	E. J. Lovegrove, Council's Engineer, Southwood-lane, N.
" 28	Waterloo, near Liverpool—Painting, &c., to Town Hall	Urban District Council	F. S. Yates, Surveyor, Town Hall, Waterloo.
Mar. 4	Burton, Woodville, and Swadlincote—Painting, &c.	Midland Railway Co.	Company's Architect, Cavendish House, Derby.
" 4	Derby—Painting, &c., to Station Buildings	Midland Railway Co.	Engineer's Office, M.E. Station, Derby.
" 4	Walsall & Wolverhampton—Painting, &c., Goods Depôts	Midland Railway Co.	Engineer's Office, M.E. Station, Derby.
No date.	Ashton-under-Lyne—Painting, &c., Fourteen Houses		S. Wilkinson, 65, Whiteacre-road, Ashton.
ROADS—			
Feb. 26	Wolverhampton—Supply of Stores	Corporation	J. W. Bradley, Engineer, Town Hall, Wolverhampton.
" 26	Surbiton—Supply of Road Materials, &c. (13 Contracts.)	Urban District Council	Surveyor, Council Offices, Victoria-road, Surbiton.
" 28	Lower Bebington, Cheshire—Provision of Horses, &c.	Urban District Council	J. Young, 78, Stanley-terrace, New Ferry.
" 28	Sheffield—Asphalting, Freestone, &c. (14 Contracts)	Highway and Sewerage Committee	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 28	Lewes—Supply of Materials and Cartage (3 Contracts)	East Sussex County Council	H. Card, County Surveyor, County Hall, Lewes.
" 28	Norder, Lancs.—Setts, Macadam, Kerb, &c.	Urban District Council	J. W. Sunderland, Surveyor, Church View, Norden.
" 28	Towcester—Supply of Hartshill Stone and Slag	Rural District Council	W. Sheppard, Surveyor, Towcester.
" 28	Bridport—Repairs to Roads		J. J. Roper, 74, East-street, Bridport.
" 28	Thame, Oxon.—Supply of Broken Granite	Rural District Council	W. Parker, 18, Corn Market, Thame.
" 28	Walthamstow—Construction of Road, &c.	Urban District Council	W. Houghton, 58, Old Broad-street, E.C.
" 28	Farnham—Crushed Granite, &c.	Camberwell Vestry	R. W. Cass, Surveyor, Farnham, Surrey.
Mar. 1	London, S.E.—Supply of Materials	Urban District Council	O. S. Brown, Surveyor, Vestry Hall, Peckham-road, S.E.
" 1	Branksome, Dorset—Road Works	Urban District Council	S. J. Newman, 3, Tennyson-bldgs., Ashley-rd., Branksome.
" 1	Exmouth—Street Works	Urban District Council	W. H. Beswick, Surveyor, Public Hall, Exmouth.
" 1	Hampton, Middlesex—Supply of Materials	Urban District Council	J. Kemp, Surveyor, Park House, Hampton.
" 1	Wakefield—Supply of Road Materials	Rural District Council	F. Massie, 47, Kirkgate, Wakefield.
" 1	Leyton—Road Works. (Three Contracts.)	Urban District Council	W. Dawson, Town Hall, Leyton, E.
" 2	Oldham—Supply of Granite Setts, Kerb, &c.	Surveyor's Committee	Borough Surveyor, Town Hall, Oldham.
" 2	Hardingstone, Northampton—Supply of Team Labour	Rural District Council	G. A. Norton, Surveyor, Horton, Northampton.
" 2	Huddersfield—Supply of Granite Setts, &c. (15 Contracts.)	Corporation	Borough Engineer, 1, Peel-street, Huddersfield.
" 2	Litherland, Lancs.—Completing Road	Urban District Council	W. B. Gaston, Surveyor, Sefton-road, Litherland.
" 2	Fulham, S.W.—Making-up and Paving Road	Vestry	C. Batterill, Vestry Hall, Walham-green, S.W.
" 3	Brixworth—Supply of Granite, &c.	Rural District Council	W. C. Woodford, 18, Market-square, Northampton.
" 4	Castleton, Lancs.—Supply of Road Material	Urban District Council	E. J. Webster, Council Offices, Castleton, Manchester.
" 4	Maidstone—Supply of Materials	Kent County Council	F. W. Ruck, County Surveyor, Week-street, Maidstone.
No date.	Manchester—Carting Flags, Setts, &c.	Highways Committee	Chief Clerk, Highways Office, Town Hall, Manchester.
"	Swansea—Supply of Materials	Town Council	Borough Surveyor, 13, Somerset-place, Swansea.
SANITARY—			
Feb. 26	Bodmin—Supply of Manures	Cornwall Lunatic Asylum	Storekeeper, Lunatic Asylum, Bodmin.
" 28	Hunslet, near Leeds—Sewerage Works	Rural District Council	S. Shaw, C.E., Dewsbury.
" 28	Llangyfelach, Wales—Removal of Refuse	Rural District Council	G. B. Haynes, 8, Fisher-street, Swansea.
" 28	Ripon—Sewers	City Council	H. A. Johnson, 14, The Exchange, Bradford.
Mar. 1	Tarbert, Scotland—Cleaning Drains		J. Allan, Pier House, Tarbert.
" 1	Camberwell, S.E.—Supply of Drain Pipes, &c.	Vestry	O. S. Brown, Surveyor, Vestry Hall, Peckham-road, S.E.
" 2	Londonderry—Supply of Manure	Co-operative Society	J. Stewart, 9, Magazine-street, Londonderry.
" 2	King's Lynn—Construction of Pipe Sewers	Corporation	E. J. Silcock, Borough Engineer, King's Lynn.
" 2	Litherland—Removal of Night Soil	Urban District Council	W. B. Garton, Public Offices, Sefton-road, Litherland.
No date.	Keighley—Laying Pipe Sewers		D. W. Weatherhead, 50, Low-street, Keighley.
TIMBER—			
Mar. 1	Hereford—Enclosing Show-yard with Hoarding, &c.	Herefordshire and Worcestershire Agricultural Society's Centennial Meeting.	A. Edwards, Corn Exchange Offices, Leominster.
" 1	Kongsberg, Norway—Rough Nutwood Carbine Stocks	Arms Factory	Commercial Department, Foreign Office.
" 1	London, W.—Supply of Timber	Great Western Railway Co.	G. K. Mills, Secretary, Paddington Station, London.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Mar. 12	Carlisle—Design for Silver Gilt Casket		Corporation.
" 14	Berwick-on-Tweed—Plans of Police Station and Lock-up	£50, £25	Corporation.
" 14	Llangathen—Plans, &c., for Stone Bridge		Carmarthen County Council.
No date.	Ecclesmachan, Linlithgowshire—Lunatic Asylum		Edinburgh District Lunacy Board.

THE MEDIEVAL CAMPANILI OF ROME.

MR. J. TAVENOR PERRY read a paper on the above subject at a meeting of the R.I.B.A. on Monday. In his opening remarks he alluded to the well-known character of the towers, and to the fact that so little was known of their history, and that so little had been written about them. He showed the urgent necessity of some detailed record of them, since already many had disappeared, and all were falling into a state of serious dilapidation. He pointed out that while there was a difference in the campanili, at the same time they were

SO SINGULARLY ALIKE

that one could not doubt they belonged to the same period and the same school. The building of towers at Rome was a tradition of classical times and no invention of the mediæval period, either for defensive purposes or ecclesiastical use. When the towers became necessary for purposes other than for defence or ornamentation, then models were found. The towers were built for two-fold purposes. First, to provide a place of safety for the treasures of the church, during the frequent tumults in the city, or for protection against the attacks of the pirates; and secondly, for the hanging of the church bells, which, from the time of Constantine, were used to summon the faithful to worship. In some cases, the superstructure belonged to the same period in which the towers were built, or to a subsequent period.

THERE WAS LITTLE AUTHORITY

upon which to fix the date of any of the campanili, beyond the mentioning that some particular church was built for a particular purpose without any reference to the towers. There was one case, however, in which, though there was no written account, the paintings might, perhaps, be relied upon more than the architecture. But it was only when they examined the buildings, apart from the statements of historians, that they were enabled to form an opinion as to their erection. The lecturer proceeded to enumerate the campanili still standing, specially mentioning those built by Pliny, Augustus, and Diocletian and representations of those which have been found, particularly that on a ceiling discovered in the Farnesina gardens by Professor Lanciani. The first recorded erection of a bell-tower in Rome is that of St. Peter's in the middle of the eighth century, which was restored, by Leo the Third, a few years later. In giving an abstract of the principal events in mediæval Roman history, as related by Gregorovius, an attempt was made to show that only during very limited periods were building operations possible in Rome, and that the most important of these was the time of Leo the Fourth after the repulse of the Saracens.

THE DETAILS OF THE CONSTRUCTION

and decoration of the towers were described in relation to their likeness to or divergence from classic examples, particularly in reference to their arcades; and an attempt was made by a comparison between these and the windows of some English towers known as "Saxon" to establish the theory of their early date. He said "Whence did the Saxons derive their ideas on this subject? Not from the scanty vestiges of antiquity still remaining in the island, not from France or Germany, where such features were unknown; but from the only place where they could by any possibility exist—Rome itself. Alfred the Great, entering St. Peter's for the coronation of his father, Ethelwulf, had before him the great campanile of Stephen and Leo, and, when leaving, from the steps of the atrium, he may have seen the campanile of St. Michele of the Saxons in the Borgo, much as we see it now." A comparison was further made between the dated

EXAMPLES OF TOWERS IN NORTH AND SOUTH ITALY,

such as those of Milan, Amalfi, &c., with a view to show that the Roman examples were of an earlier date. The niches on some of the

towers were described, and it was suggested that these were not intended for statues but to shelter sacred paintings, of which great numbers reached Rome from Byzantium in the time of Leo the Iconoclast. The majolica decorations were mentioned as indications of date, those on SS. Giovanni e Paolo being assumed to be co-eval with the tower, and painted for the position they occupy. In conclusion an account was given of

THE STATE OF DILAPIDATION

into which most of the campanili had fallen, and the damage which had been done to them by injudicious restoration or repair. —The paper was illustrated by a great many pen and ink drawings, by the author, of the towers and their details. —Mr. Phené Spiers, who proposed a vote of thanks to the lecturer, said in the papers which he had had the privilege of reading at the Institute he was afraid the general tendency was to prove that the buildings he described were of a later date than that which hitherto had been given to them. It was, therefore, some relief to have Mr. Perry coming forward to prove that the authorities were wrong, and that a much earlier date could be given to certain features of the campanili. Mr. Perry based his arguments on three reasonings: First, the historical one, in which he had the great advantage of quoting the publication of Gregorovius. This was almost the first time they had a book of careful enquiry into this question, for, as Mr. Perry had pointed out,

THE SUBJECT HAD BEEN GREATLY NEGLECTED

by everyone; but the few extracts given by Mr. Perry showed ample records of proof, contrary to the generally accepted opinion, that these towers belonged only to the twelfth and thirteenth centuries. Secondly, it seemed to him perfectly clear that bell towers did exist at the period mentioned. Mr. Perry had not been able to find out, and neither had the speaker, whether these towers had capitols or not, but, at any rate, there was the lofty tower of the sixth century. Of course, there was the very important question which was suggested by the reference to the Saracens, Normans, and other people, namely—whether, if they burnt so many churches, they would have allowed these towers to exist still. That was a point which suggested to many authors, Fergusson and others, the idea that they must have been all destroyed, and therefore that

THE PRESENT TOWERS

were of a later period. Thirdly, Mr. Perry only spoke of "certain features" in the towers, which he, however, considered the most interesting points. He knew that one design given was certainly of Byzantine origin, though he could not say of what date. Then there was the question of the wall shafting, and there he found it rather difficult to follow the lecturer, because he had described as "a feature" what he (the speaker) looked upon as a dossered; or what he regarded as a block or ugly capitol, the lecturer called a capitol frankly. It depended upon what one understood by a capitol. He understood one of the arguments of Mr. Perry was to prove that a feature was introduced and no capitol underneath. The absence of a well-known feature in these earlier examples was a singular coincidence, but they knew it had been copied in this country

IN THE SAXON PERIOD.

Mr. Perry alluded to three or four Saxon churches. He (the speaker) visited the church at Worth the other day. During the restoration there a few years ago they discovered some original Saxon windows, and they were identically the same as those in the campanili in Rome. The copy was very rude and commonplace, but it must have had some origin, and it seemed to him that the only origin it could have had was that derived from Rome. —Mr. H. H. Statham seconded the vote of thanks, observing that it was a useful paper that gave some new information. —Mr. Woodward said he could not help hoping that some one in the position of Mr. Perry would devote an equal amount of time and study to illustrating the Norman round towers which

they saw scattered about England, the uses of which had not, so far as he knew, yet been clearly defined. They might have had an origin of a similar character to the origin of the campanili. They were watch towers, they knew, but possibly campanili also. If a similar collection of sketches of the round towers could be made, and a study of them also, he felt sure they would be useful to the Institute. —The Chairman (Mr. H. L. Florence) said there was one point about the paper which was worthy of notice. The Institute awarded a travelling studentship every year, the Soane medallion. It might be said that they had read and learnt of all to be seen in foreign travels, but from the lecturer's paper they saw there was really a

GREAT DEAL TO BE LEARNED

from actual study of the buildings. Mr. Perry had shown them that even upon subjects like the campanili of Rome, with which they were all acquainted, yet many of them who had been to Rome, and looked at them superficially, had a great deal to learn. —Mr. Perry briefly replied.

SIDE WINDOWS OF SUSSEX CHURCHES.

MR. P. M. JOHNSTON contributed a paper on "The Low Side Windows of Sussex Churches," at a recent meeting of the Sussex Archaeological Society, at Eastbourne. He remarked that no satisfactory explanation had yet been offered as to the origin of these curious openings, which he had found present in thirty-three of the Sussex churches, while probably a more particular survey, which he had advised should be made, would reveal a larger number. There were only two instances, so far as he knew, in Sussex, of these windows being found outside the chancel—in Buxted Church, and in St. Clement's, Hastings. Running through the list of churches possessing these windows, Mr. Johnston complained of the manner in which such interesting village churches as those at Rustington and elsewhere were neglected, where, as also at Ford, the sill of the low side window was marked by the primitive sundial, as indicative of some exterior connection. As to the uses of these windows, there was an old theory that lepers and others with infectious diseases received the Eucharist through them, but inasmuch as the position of some of the windows would not permit of this, or even of the view of the high altar, the theory was now regarded as untenable. Similarly the idea that they were to give a view from outside of the Pascal or some other light was no longer seriously held by archaeologists to-day, while the grille, or ironwork, of some of them disposed of the idea that these openings were for the ringing of the Sanctus bell. Another theory that these openings were for the ventilation of the building was scarcely one that would have been likely to have commended itself to their ancestors. So that eventually they came to the confessional theory—that these openings were for the hearing of confessions—a theory which was supported by a communication on record by one of the Commissioners appointed to inquire as to the religious houses by Henry VIII., who recommended that those places, where the Friars were wont to hear the confessions of the people, should be walled up.

The Glossop Town Council has adopted the plans of a technical school to be built on a site opposite the Free Library. The architects are Messrs. Douglas and Minshall, of Chester.

MR. GEORGE PIRIE, Aberdeen, is the successful contractor for the Caledonian Railway, to construct the Blackwood to Lesmahagow line. The contract price is between £70,000 and £80,000.

A STAINED glass window has been erected in Free St. Paul's Church, Dundee. The subjects represented are Faith, Hope, and Charity, and the work was entrusted to Messrs. Clayton and Bell, London.

THE HOUSING OF THE DRAMA.*

BY EDWIN O. SACHS,

Author of "Modern Opera Houses and Theatres," &c.

(Continued from page 24.)

I HAVE referred to the People's Theatre, which is entirely the result of small subscriptions or donations. There is the People's Theatre at Worms, which was erected when that town had 30,000 inhabitants. Is not that building in every way suited for the presentation of plays? Or take the Subscription theatres, which are primarily due to the efforts of donors with the intent of furthering some special cause, like the various national movements. There is the German Theatre at Prague and the German Theatre at Vienna. Everywhere we have the same story—that freedom from monetary anxieties, reverence for the Drama, and the demand on the part of the general public for the suitable housing of that Art, as well as for good Architecture, result in playhouses which fulfil both ideal and practical requirements in every way. I cannot attempt any description of the examples that I have here mentioned. As I have said before, it is not my ambition to go into details as regards the individual merits of buildings, their construction or equipment, and, with only one or two exceptions, I wish to draw attention to the circumstances under which the Drama is housed. I will, however, again point out that, of course, where theatres have to fulfil the double purposes of a opera house and a dramatic house, the results, as far as the Drama is concerned, can never be so satisfactory as where the building is specially erected for a single purpose alone. This remark applies more particularly to such magnificent buildings as the New Theatre at Dresden, which is primarily an opera house, though grand Drama is also presented within its walls. It refers also to playhouses like that at Odessa. But in spite of the disadvantages of proportions and dimensions, the Municipal, Subscription, and Endowed theatres which fulfil double purposes of opera and Drama are certainly a more fitting home for dramatic art than the private theatre I first referred to.

EXAMPLES OF COURT AND GOVERNMENT THEATRES.

Having dealt with examples of the private theatre, the Municipal, the Subscription, and Endowed theatres, I cannot but refer to instances of the Court and National institutions, the more so as it is among the former theatres that we have the most magnificent home for the Drama extant. This example, the Vienna Court Theatre, better known as the "Hofburg," takes the leading place among all dramatic houses. It is the greatest monument that has ever been erected in this direction. It is a Court playhouse in the fullest sense of the term, and it is the property of an Emperor. It is the recognised centre of the Drama of the Teutonic tongue. It can be entered for the low price of sixpence. It is the great monument of the Austrian nation, and there is no modern building to which any community points with greater pride than this Court Theatre. Nor have they erred in their judgment, for as an example of technical skill brought to high perfection it is the foremost home for the Drama that has yet been created, both from the artist's, the architect's, the author's, and the actor's point of view. This building embodies everything that is suitable to a home for the grand Drama (and I use the term "grand Drama" advisedly, for the auditorium is too large for the chamber play). Owing to the remarkable position occupied by this playhouse, I may be excused for calling attention to some of the principal features of the design, and reminding you that the structure is the outcome of the combined efforts of Gottfried Semper and Baron Hasenauer. The plan and the general lines of the design embody the results of Semper's long study on

the question of so-called radial planning, whilst the decoration and equipment give expression to that wonderful delight in characteristic detail and ornament in which Baron Hasenauer excelled. Semper's experience on the Dresden theatres formed the stepping stones for the general conception, and Baron Hasenauer's experience in the decoration of the Vienna Court Museums stood him in good stead. Apart from the ideal surroundings of this structure, which is situated on one of the most beautiful boulevards of the Austrian capital, it is the segmental treatment of the façade and its two wings which at once strike the eye, and give this playhouse its individuality. The wings, it is true, are due to the special requirements of the site and the desire to add to the importance of the block, but the segmental treatment is solely the outcome of the

SYSTEM OF RADIAL PLANNING

referred to. Then it will be noticed that the general grouping is remarkable for the rational manner in which the exterior expresses every part of the interior arrangements. This characteristic is likewise very evident in the rendering of the principal façade. In the interior the segmental foyer is certainly the chief feature, and it is to be observed that the same formation is given to the grand vestibule, and also to the minor lounge which is attached to the third and fourth tiers. As regards the conception of the grand foyer, with its simple grouping of tiers of pilasters, its exquisite colour study and decoration, it is impossible for me to say more than that, with the aid of brilliant workmanship, perfection has been nearly achieved. The next feature is the manner in which the two grand staircases rise from the street level to the first tier in one broad flight. In the auditorium again, I would call attention to the prominence given to the royal boxes in the proscenium and the central State box. The careful and varied decoration of the box division is remarkable, and in the ceiling there is a skilful blending of semi-relief work with painted surface which has a note of originality. The building is remarkable for the extensive use of iron and steel in the containing walls of the auditorium, which are practically composed entirely of metal plates fitted together in such a manner that the intermediate spaces are used as ducts for ventilation and warming. One of the characteristics of the "Hofburg" theatre is the thorough way in which these and other technical appliances, both for the stage and auditorium, have been elaborated. Everything that modern ingenuity has been able to discover is utilised in the block with more or less success, and in no part has the engineer's work been hindered as is frequently observed in other theatres where architects have disregarded the requirements of the allied professions. Let me repeat that the Vienna Court Theatre, erected at a cost of nearly £550,000 and planned to hold an audience of 1475 persons, is indeed

A MOST ELABORATE AND WONDERFUL STRUCTURE.

Taken as a whole, the architectural rendering is of the highest order of Art, and more nearly approaches perfection than in any other such building erected during the present century. This theatre offers a striking instance of that high standard of theatre construction which I consider essential for the suitable housing of the Drama. Now this is the only example of a true home for the Drama of which I have attempted to indicate some of the main features of the design, for the simple reason that it embodies the highest standard of a dramatic home which the world possesses. As I have said, it is a Court theatre owned by a monarch. I have spoken of the Municipal theatre, the Subscription theatre, and the Endowed theatre. It is apparent that we cannot expect from the private theatre what the other classes of structure give us; on the other hand, our institutions are such as make it highly improbable that we shall within reasonable time have either a Court theatre or a State theatre, and with the few

exceptions in our most go-ahead cities in the north, it appears most unlikely that we shall soon see the Municipal theatre. May I then ask if it is not time to consider the question of Subscription and Endowed theatres seriously? If we subscribe to the erection of picture galleries and the homes of other arts, why can we not subscribe for the theatre? If we endow museums and libraries, which are to aid in our education and afford us beneficial recreation, why can we not similarly endow the theatre? If we wish to erect monuments to mark the culture and prosperity of our times, why should they not take the form of playhouses; and if it is the universal desire that facilities for education should be given, why limit our gifts to the collection and distribution of books, or the collection and presentation of art treasures when words on the stage, properly spoken in suitable surroundings, produce a far greater impression on the mind than any amount of book reading or the study of collections? As I have said, the spirit which pervades our Government at the present time, and which will pervade it for some time to come, prohibits our expecting a State theatre, and I do not think there is any likelihood of our Court contemplating the erection of a playhouse. To repeat, there is but a very slight chance of having a Municipal playhouse. Hence, why not, as with so many other institutions by which England has become great, let the citizens take the initiative themselves, and either by subscription or through endowment by the wealthier members of the community, give us that high standard of playhouse which we should rightly long have had. Surely the architect who writhes as he sees the many theatres from which every vestige of the feeling of Art is absent, should help to his very utmost in any movement towards providing us with better homes for the Drama, structures which should at the same time become some of the most decorative features of our cities. Failing Government or Municipal action, surely the Subscription or the Endowed theatre will lead soonest to this end. Hence, may I conclude by urging that the architect, with his great influence among all manner of men, should advocate the Subscription and Endowed theatre, the only practical road at the present time towards the Drama being suitably housed with due dignity and full regard to the possibilities of architectural design.

A new lych-gate has been erected at Llande-faelog-fach, in Breconshire. The work has been carried out by Mr. Griffiths, of Brecon, from designs by Mr. F. R. Kempson, F.R.I.B.A., of Cardiff.

With reference to the much discussed Westminster Improvement Scheme, Mr. Norman Shaw has accepted the position of architect to the Board, and Mr. Lutyens will be associated with him.

At a cost of over £20,000 the Corporation of the City has succeeded in effecting an admirable rearrangement in Smithfield. The old fish market, which for years past has been ignominiously hidden away in a nook, is now installed in the newer building near Farringdon Street Station.

FUNDS are being raised in the diocese of Ripon with the view of establishing a mission-house as a memorial to the late Dean Fremantle. The improvement of the east window of Ripon Cathedral, and the fixing of brass memorial tablets on each side of the window, form part of the scheme.

A new technical school has been provided for the parts of Kesteven and the Borough of Grantham. The school, which is situate at the rear of the Grantham Guildhall, has had a somewhat remarkable history, inasmuch as it was originally a prison, then a cigar factory, and eventually a technical school.

The London County Council has passed an estimate of £3300 for the electric lighting of the Embankment. The capital expenditure for the installation is estimated at about £25,300, and the probable annual cost of maintenance £3509. There will be lamps on each side of the carriage way, about 240ft. from each other, and on Westminster Bridge and Northumberland Avenue.

* A paper read before the Royal Institute of British Architects on February 7th.

Professional Items.

ABERDEEN.—The Aberdeen Town Council recently discussed at some length a proposal which practically amounted to dispensing with the services of the present city architect. In the meantime the duties are discharged satisfactorily by Mr. John Rust, who, at the same time, carries on a private practice. The Finance Committee, by eight to two, recommended that no alteration be made upon the present arrangement; but it was proposed that the Council appoint a Master of Works, whose duty would be to look after the town's property, and prepare, sketch, or block plans when required to do so by any committee of the Town Council. It was urged that Mr. Rust had an advantage over other architects competing against him for town's work. The amendment was, however, rejected by twenty-three to six votes, so that the present arrangement will continue.

ALCESTER.—The Alcester Guardians have considered the report of the committee re the enlargement of the workhouse infirmary. It was stated that the best and least expensive course to improve the greatly-overcrowded state and defective arrangements in the infirmary wards was to erect a new infirmary altogether, for which Mr. W. H. Ward, architect, Birmingham, had prepared sketch plans. Mr. Ward's estimated costs of the new buildings was £5820, exclusive of land, and it was decided to apply to the Local Government Board for a loan of £7000.

CLECKHEATON.—The new Liberal Club, just opened, is a building of two stories in the Renaissance style, and, exclusive of site and furniture, has cost £2500. There is a fine Ashlar stone frontage to the main elevation, which stands back a little from Northgate, and which has mullioned and transomed windows. Above the entrance is a balcony, to which access is obtained from one of the upper rooms. The hall is paved in mosaic; to the right is a reading room, 28ft. by 17½ft., with a floor of wood blocks; opposite is the committee-room, 17½ft. by 15½ft. The assembly or recreation-room, on the same floor, is 36ft. by 28ft., and will accommodate about 180 persons. There are separate entrances to the room, and thus special gatherings may be held here without causing any inconvenience to the members in other portions of the premises. A broad staircase leads from behind the committee-room to the second floor, on which there are two billiard-rooms, a bar, card-room, and lavatories. The rooms are heated by a moist-air apparatus. The whole building is of stone, and has been erected from the designs of Mr. Reuben Castle, architect, Cleckheaton.

GUNNERSBURY, W.—The new chancel of St. James's, Gunnersbury, W., which the Bishop of London consecrated last week, is the same width as the nave, and measures 40ft. in length from the chancel arch to the eastern wall, and the height from floor of choir to the apex of ceiling is 42ft. On the north side are the vestries and organ chamber, with open arches towards the chancel and nave aisle. On the south side of chancel, facing the high road, it is proposed to add at a future time a south aisle, which may be used as a morning chapel, but at present the arches are filled in with a temporary wall. The building has been carried out in the Early Pointed style, in harmony with the rest of the church, but the work in the arches, traceried windows, and redence is somewhat richer in character. The oak work of the screens and reredos is in a later style of church work. The screen dividing the chancel from the nave is of light, pen oak work; the lower part, like the reredos, as carved ribbon panels, and here also there will be opportunity of future painted decorations. The nave of the church, owing to the removal of temporary chancel, has had extended new accommodation added, and the pulpit has been altered and re-arranged to suit its

new position against the south pier of the chancel arch. The building work has been executed by Messrs. Dorey and Company, of Brentford; the oak screens and reredos are by Mr. Caldecleugh, of Durham; the tile floors by Messrs. Carter, Johnson and Company. The whole of the works have been carried out from the designs and under the personal supervision of the architect, Mr. Howard Chatfield Clarke, of 63, Bishopsgate Street Within, E.C., the cost having been about £2750.

HUDDERSFIELD.—The St. Joseph's Catholic Church has just undergone renovation and decoration. The representation of the Sacred Heart in the sanctuary is the most noticeable decoration. It has been effected in the Florentine style by Messrs. Cracco, a Belgian firm. In other parts of the edifice there are fourteen pictures of the Stations of the Cross, painted by Messrs. Lunn and Carduo, of Huddersfield.

PRESTON.—The scheme of decoration entered upon some time ago at St. George's Church has been completed. St. George's was originally a chapel-of-ease to the parish church, and was built in 1723. The chancel was rebuilt in 1843-4, and considerable alterations took place in 1848, when the edifice was faced with stone. The general scheme of decoration was commenced a few years ago, when a large fresco of the "Adoration of the Kings and Shepherds" was painted over the chancel arch, and on the side walls figures illustrating the "Te Deum," angels, prophets, apostles, martyrs, and churchmen. The nave walls were also decorated with ornament, leaving the ten large oblong panels over the arches (five on each side) to be subsequently filled with fresco figure subjects, which has now been done. At this time also the ten wheel windows of the nave were filled with stained glass, representing seated figures of the prophets, bearing scrolls inscribed with texts of prophecy. With regard to the scheme of decoration now completed, commencing in the sacristy, which has an apsidal termination, the apex of the semi-dome is filled with an Adoration of the Lamb, the Lamb occupying the centre panel, with adoring angels at the sides. In the large dome panels below are standing figures of Cherubim and Seraphim painted on a rich gold background of mosaic-like effect. Over the semi-circular window heads are seated figures of the four Evangelists, with SS. Peter and Paul. The outer (westernmost) panels of the sacristy roof are treated with foliage and fruit in rich colours, and raised gesso work of gold, and the wall spaces below contain figures of SS. James and Jude (to complete the writers of the New Testament), and Abraham and Samuel. In the nave the five large bays over the arches on the north side are occupied by a long processional fresco, representing the journey of the Israelites to the Promised Land. In the corresponding bays on the south side of the nave is a processional fresco of our Lord's entry into Jerusalem. The wheel window at the west end of the church is filled with a figure of our Lord seated in majesty, and on the wall spaces on either side are painted figures of angels offering incense. Below this window and above the arch of the baptistery is a large wall space, on which a fresco has been painted representing the baptism of our Lord, with surrounding figures among foliage of the Prophet Isaiah and seven angels, typifying the seven gifts of the Holy Spirit. Below the subject runs a scroll, on which is written a text, and above the subject are three scrolls with texts. The treatment of the baptistery is charming in effect. Above the dado and below the wall-plate are six small figures of angels standing among iris flowers, bearing scrolls. The roof is of blue, and is ornamented with descending tongues of flame interspersed with twelve descending doves, emblematic of the twelve fruits of the Holy Spirit. The baptistery window represents the subject of "Christ blessing little children." The whole of the work, both stained glass and decoration, has been designed and carried out by Messrs. Shrigley and Hunt, of Lancaster and London.

PLYMOUTH.—Building operations are unusually brisk in Eastern Plymouth. Within recent years a new town has been planted out in that direction. It continues to extend. At the present time the chief seat of activity is just to the east of Salisbury Road. Surveying operations have been commenced upon a new and extensive plot of ground to the north of the railway line. It is there that the Plymouth Baptists intend erecting their new church.

SWANSEA.—The new swing-bridge to connect Swansea with St. Thomas, and passing over the New Cut and the River Tawe, has been opened. The new bridge is a huge structure, the swing of which weighs over 480 tons, which has been put up at a cost of £27,000, and replaces a drawbridge. Cylinders have been sunk 25ft. into the bed of the river, and the bridge is carried on a turntable resting on girders on the sunk cylinders. It provides for two lines for foot passengers, two for vehicles, and one for trains. Its total length is 164ft. 6in., the swings being 72ft. and 92ft. 6in. from the centre of rotation. There is a fixed portion on the eastern side of 70ft. 9in., which makes the total length 234ft. 6in. Its width is 45ft. It is worked by hydraulic power, and is surmounted by a large glass house. It was designed by Mr. A. O. Schenk, and built by Messrs. Handysides, of Derby.

WAKEFIELD.—The new West Riding County Council offices have just been opened. The site contains more than 5000 square yards. The buildings cover three sides of a rectangular plot of land, the principal fronts being in Bond Street and Cliffe Parade. On both these fronts decorative carving is lavished with liberality and excellent taste. On the gables which break up the façade of the building in various places, the decoration is emblematic of literature, art, music, and science. In other places justice, education, progress, and health are depicted. On the main front toward Bond Street the principal decorative feature is a fine arcade or loggia, the piers supporting which are relieved by large statues. Among the subjects represented are a miner, an iron moulder, an engineer, a spinner, a glass blower, a potter, and a farm labourer. These figures, and most of the decorative work on the exterior, have been sculptured by Mr. Rhind, of Edinburgh. Internally suites of offices are provided for the different departments, and there are a library, a luncheon-room, several committee rooms, and, of course, a large hall for the meetings of the Council. The latter apartment, with a graceful domed ceiling, is capably arranged, and it is anticipated—so far as calculation can provide for such a matter—that it will be acoustically perfect. The windows in the hall and on several of the staircases and corridors are decorated with the arms of the principal families of the riding, many of whose representatives have been, or still are, members of the Council. The ante-room to the council hall, though not large, is one of the most striking rooms in the building by reason of its fine frieze of moulded and coloured plaster. This represents scenes in the Wars of the Roses, the first exhibiting the great battle of Wakefield; another the finding of the crown of Richard III. at Bosworth, and its assumption by Henry VII.; the third, the entry of Henry VII. with Elizabeth of York into Wakefield after their marriage; and the fourth, the delivery by Queen Margaret of Anjou of her son to the Hexham robber. The sculptor was Mr. Fehr, of London. The whole building has been designed by Messrs. Gibson and Russell, of London, and the contractors are Messrs. Armitage and Hodgson, of Leeds.

WESTON-SUPER-MARE.—The Urban District Council has considered the plans for the improvement of the market and for extending the Knightstone Baths. The plans of Messrs. Price and Wooller for the former were approved, and tenders for the work are to be invited. Two sets of competitive plans for an extension of the slipper baths at Knightstone were sent in under seal, and the Council approved those prepared by Mr. S. J. Wilde. It was agreed to ask Mr. Wilde to at once prepare detailed plan and specification.

Under Discussion.

THE WINTER SESSION.

"NORMANDY."

At a meeting of the Edinburgh Architectural Society, on the night of the 16th inst., Mr. Wm. M. Cumming, president in the chair—a paper was read by Mr. J. E. Forbes, entitled "Normandy." Mr. Forbes gave an interesting account of his tour, and sketched the general characteristics of the towns in Normandy, especially pointing out the peculiar beauty of colour pervading the landscape. Rouen was specially mentioned as being exceptionally artistic, showing marked examples of the fourteenth and fifteenth century Architecture. Passing on to Lisieux, Mr. Forbes mentioned the timber-framed houses as worthy of notice, comparing favourably with like work in Chester.

BATH MASTER BUILDERS' ASSOCIATION.

The annual dinner of this association was held under the presidency of Mr. George J. Long. The toast of the "National Association of Master Builders of Great Britain and the Federation of the West of England and South Wales" was given by Mr. G. Parrin, of Bristol. Mr. A. Krauss, of Bristol, responded, and said the Federation had done a great deal of good, and he hoped through the loyalty of the members it would prove of benefit with regard to the dispute with masons now occurring at Cardiff.—Mr. E. W. Wood gave "Architects and Surveyors."—Messrs. T. B. Silcock and H. W. Matthews responded.—Mr. F. N. Cowlin, of Bristol, proposed "The Bath Master Builders' Association," and the President replied. Mr. W. Dyer, of the Weston-super-Mare Association, responded to the toast of "Kindred Associations."

INSURANCE OFFICES AT EDINBURGH.

The Edinburgh Architectural Association has visited the new buildings of the Prudential Assurance Company (Limited) in St. Andrew Square, Edinburgh, under the leadership of Mr. Clark, the clerk of works. The members also paid a visit to the premises of Charles Jenner and Co., Princes Street, where they were conducted over the building by Mr. W. Hamilton Beattie, architect. An inspection was afterwards made of the Edinburgh Stock Exchange, where Mr. P. Maxton Cunningham acted as guide.

THE STREETS OF LEEDS.

A dinner in commemoration of the twenty-first anniversary of the founding of the Leeds and Yorkshire Architectural Society was held at the Queen's Hotel, Leeds. Mr. George Carson (President of the Society) was in the chair.—The Lord Mayor, in responding to the toast of the City Council, said if architects would spend a few hours from time to time in sketching a plan for making direct communication between various parts of the city, they would be doing a work almost of charity. There were means of communication in some directions, but the city sorely required cross streets. If architects could only devise a system of boulevards and broad streets in the centre of the city, he was sure it would be greatly valued by the City Council. Leeds must look to the architects to assist not only in arranging the streets, but, if possible, in raising the standard of beauty and proportion to something like that of Paris, which was so much admired. In walking through Regent Street, in London, no one could fail to notice the height of the buildings and the breadth of the streets. In Paris the regulations with regard to the height of the houses were very stringent. If the architects of Leeds could induce Mr. Batley and his colleagues on the Building Clauses Committee of the City Council to form a scheme which would secure that buildings of one kind were erected in one street, and buildings of another kind in another street,

Leeds, in the future, might be admired not only for its commercial enterprise, but also for its beauty.—Mr. W. M. Fawcett, in responding for the Royal Institute of British Architects and Allied Societies, remarked that the influence of the Institute had helped very much to bring about open competition for contracts. In the old days it was by canvassing that orders were secured when plans were submitted to public bodies. The influence of the Institute had been sufficient to do away with this to a very large extent. The Institute had brought about a system of examinations. That was a matter of the utmost difficulty. Some leading architects held themselves aloof from the proposal. They said that examinations did not make artists, and architects were artists. John Bright once said at Cambridge, "You Cambridge men do not make genius." He was immediately met with the reply, "No; we do not make genius, but we train it." It was the same with architects. The artist was a heaven-born genius. Examinations could not make an artist, but they might train him. He spoke with the greatest confidence of the good done by these examinations.—Mr. John Ely, President of the Manchester Society of Architects, also responded.—In proposing "The President and the Leeds and Yorkshire Architectural Society," Ald. Gordon said that there seemed to have been eras when architects in Leeds had good taste. But there had been eras with an absence of good taste. The present generation of architects had done much for the city. The president in many matters had done much to advance the beauty of the city. Architects were scoffed at for increasing their estimates, but he was sure that the fault lay with the employers who had weak purposes and no knowledge of the subject. Architects in Leeds had not the same chance as in some other cities. The atmosphere, for one thing, was against them. There was something more than beauty of form to be considered in Architecture; there was beauty of colour. In Leeds the beauty of colour could not stand against the attacks of the atmosphere, but some of the buildings of the city, notably the Town Hall, showed that a true and beautiful form would dwell long after the building had been blackened by soot.—The Chairman, who responded, said if the Corporation had begun many of the improvements which were now being carried out twenty or thirty years ago it would have been much to the advantage of the ratepayers. Referring to the congested districts in the east end of Leeds, the Chairman suggested that suburban villages might be made for the working classes. It would be an easy matter to arrange for workmen's trains.

ROAD CONSTRUCTION.

Mr. W. B. Beaumont, the newly-elected President of the Society of Engineers, delivered his inaugural address at the first meeting this year a few days ago. After alluding to the advances made in mechanical motive power, he said that some millions sterling were thrown away every year in the United Kingdom as a result of insufficient expenditure on roads and means of transport. Few realised how large a proportion of the whole of the industry of a country like England related to traffic and travel on land; still fewer realised how vast was the importance of good roads for the use of all. Only in some parts of some of our cities had we really satisfactory road pavements or road surfaces, and on comparatively few of our country roads were the surfaces at all approaching what they should be. At present there were about 1,400,000 draught horses at work in the United Kingdom. Of these, at least one-tenth could be easily dispensed with by small improvements upon the present methods of constructing and maintaining our road surfaces and by the improvement of the heavier gradients. On the road construction and maintenance of the future depended the development not only of the machinery required for the purpose but of high-class self-propelled vehicles for every application, and on the improvement of the road communications between towns and villages depended not only great engineering industries but the growth in the value of land.

Correspondence.

"THE DISSIPATIONS OF AN ARCHITECT."

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Under the title of "An Architectural Causerie," in a recent issue, some points are raised which, I think, are open to criticism, if not to censure. The writer says: "Sketching is a dangerous form of dissipation." What does he mean by sketching? If he means making elaborate drawings, showing detail which he alone can distinguish, I agree with him. It is most important, however, to sketch examples of good proportion and fully figure them in mass and in detail. Old buildings thus studied and noted is a practice which cannot fail to be of the greatest service from a practical point of view, for reference, not slavish imitation. Otherwise, how can we judge of proportion, we who design on paper where our predecessors designed with mallet and chisel, with far greater freedom and effect, than we with all our boasted nineteenth century enlightenment?

"Stifle any lurking ambition to become craftsmen," says the same writer. Would that more of us were imbued with the same ambition! The writer goes on to say that it is prejudicial to the attainment of full architectural growth. I emphatically disagree with this statement: the past furnishes us with rich examples of craftsmen who reached the summit of achievement in our own Profession. Michael Angelo and Grotto are sufficient witnesses, without mentioning lesser celebrities; but in truth we cannot get away from the fact that it was by reason of our predecessors being craftsmen that they were able to carry out their great conceptions. How shall we ever attain our ends unless we are able ourselves and with our own hands to direct our workmen. We have led them by our own foolishness into blindly and slavishly following us, whereas in reality they should be free as the air to embody our conceptions, crystallising them in the perfect ideal, as they certainly did of old.

If we are not careful the main fabric will pass from our hands as the control of the minor arts certainly has done.

The writer says further "that Architecture, no less than sculpture, is purely an appeal to the emotions through form, and the introduction of colour is no less distracting in one than in the other in their most intense forms." I think that colour always has been, and always will be, the most fitting medium for embodying beautiful form. We can no more dispense with the colouring of St. Mark's than with the sculptures from the Parthenon; both are their natural modes of expression. Unfortunately the art of colour has been gradually dying in our island, and the spasmodic attempts at its revival have not been altogether successful, which may account for H. V. L.'s evident prejudice against it as a mode of architectural expression.

Colour rightly used must always be a source of delight to man. We cherish it in our homes. Why should we banish it from the outside of our buildings? Our streets are sombre enough, with their stock brick, or, worse still, stuccoed fronts. Why should we not enliven them with a judicious use of coloured material, which, if suitably applied, should give excellent results?

I have just returned from a trip to Australia, where I found striking examples of how not to apply colour; but here, in our great city, we have every means at our disposal, and deserve to be branded as laggards if we do not avail ourselves of them.

Colour we can nearly all appreciate, bad as well as good, unfortunately; and it rests in our hands as architects as to whether our streets shall remain a triumph of the former or the latter.—Yours, etc., R. C. A.

A PROJECT for erecting a stained glass window in Lincoln Cathedral in honour of the late Lord Tennyson is being discussed in the county. The cost is estimated at between £250 and £300.

Enquiry Department.

Readers manifest a desire from time to time to assist those who avail themselves of the Enquiry Department instituted in this Journal, and many supplementary replies answering points raised in the Enquiry Department have been received from all quarters. The Editors, therefore, have decided, in order that Enquirers may benefit also by these kind offices, to publish the supplementary answers, in addition to the answers supplied by the technical experts associated with the staff of the Enquiry Department. The more widespread the information, the more effectually will the purposes of the Enquiry Department be served, and the Editors invite replies from any to whom the questions appeal, as they appear. Such answers must be to hand not later than Saturday morning for the forthcoming Wednesday's issue.

DRAINING BASEMENTS.

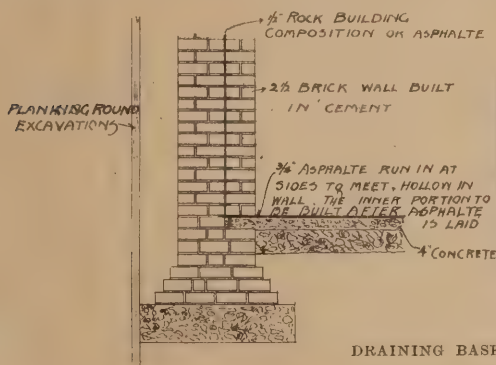
To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In regard to your reply to the query concerning the draining of basements, my experience is that a 12in. concrete floor, with the walls built in cement, will not form a perfectly dry basement. On the accompanying drawing I show a method of forming a pit in circumstances similar to those of your correspondent's case, which should insure a perfectly dry cellar.—Yours faithfully, J. McI.

THE VELOCITY OF STREAMS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I would feel obliged if you could



DRAINING BASEMENTS.

Views and Reviews.

A DICTIONARY OF ARCHITECTURAL TERMS.*

By R. S. BURN.

THIS is a bulky book of nearly 300 pages, printed in double columns of small type. The author has brought a vast amount of diligence and research to bear upon the work, which dissects and explains for those not already thoroughly conversant with the terminology of the architectural arts and building trades all the constituent parts of buildings, from a cathedral at one end of the gamut, to a coal cellar at the other. The architectural features of coal cellars, as may reasonably be supposed, have not given Mr. Burn much scope for his erudition. Far otherwise, however, is it with cathedrals. The most obvious criticism to be made by the youthful architect, fresh from Great Marlborough Street, and not yet numbered among the elect of the R.I.B.A., will be that he is not likely to come to very close quarters with cathedral work, and that Mr. Burn's industry has but enabled him to become conversant with it from an entirely armchair or academical point of view. This is by no means a reflection on the book now under review, because it is quite obvious that when one sets out to write a technical dictionary of this description, one must needs embrace everything from the Saxon style to syphons (which last, by the way, we are unable to find in these pages, spelt either with an "i" or a "y") only. To the great majority of architects, in their everyday practice, there is more "actuality" (to use the literary slang-word of the day) in syphons than cathedrals, for which not every member of the Profession can hope to receive a commission. From this practical point of view Mr. Burn may be recommended to add

the permanent way, instead of beside it, as before. Mr. Burn's description of "Cob Wall" is an instance of incomplete description, want of specialising, or want of exact illustration. He says: "A wall built with clay or adhesive soil, sometimes mixed with chopped straw, to secure a bond amongst the materials. Many cottages of the poorer class in the south of England are built in this way, and in South America more especially the system is largely employed." Now it is quite conceivable in these days, when the architect not unfrequently (and often with great advantage) goes back to the manner of building employed

IN OUR ANCESTORS' TIME,

that one might care to know more about these "cob walls." Well roofed, with projecting eaves to throw off the rain, a country cob-walled cottage has many recommendations. It is cheaper to construct, and is at once warmer and dryer than many brick and stone-built houses, while capable also of outlasting them. Mr. Burn might with advantage have pointed out that it is in the districts of England which do not produce stone that cob-walls are most frequently found. Thus, throughout Essex and in many parts of Devon and Dorset, cob flourishes, while in Essex the material has for centuries been so continuously used, alternately with "wattle and dab," that quite an interesting local form of art exists in the incised decoration of these "mud" walls. The practice in all districts where "cob" is used is to whitewash or limewhite it. Devon cob is made of red, clayey earth, mixed with pieces of red sandstone conglomerate rock and straw. The walls are commonly from 2ft. to 3ft. thick. The South American cob is known as "adobe," and is also common in Central America and Mexico. Mr. Burn's book, although (as would probably be inevitable in any book of the kind) not thoroughly posted up in local peculiarities of this kind, is generally reliable, and undoubtedly of great use. C. G. H.

THE Borough Surveyor of Swansea has submitted plans for additions to the Guildhall at a cost of £4000.

THE new branch of the North of Scotland Bank has been opened at Arbroath in the premises in High Street, acquired by the directors for the purpose.

THE City Corporation has decided to rearrange the street crossings at the approaches to Blackfriars Bridge, and construct permanent rests at a cost of £300.

THE Surrey County Council has sealed an agreement with the Middlesex County Council for the rebuilding of the bridge over the Thames at Kew, in accordance with designs prepared by Sir John Wolfe Barry, K.C.B.

THE London County Council has adopted a proposal for the expenditure of £197,000 on new fire-engine stations, steam fire-engines, and horse-escapes, which will involve an extra annual charge for maintenance of nearly £25,000.

THE Inverness Burgh School Board has instructed Mr. William Mackintosh, architect, Inverness, to prepare plans and specifications for the erection of a new school. The new building is intended to accommodate 500 pupils, and the estimated cost of its erection is £2000.

A FEW days ago an accident of an alarming character occurred in New Street, Aston. A number of double shop-fronts have been in course of reconstruction, and whilst two labourers were at work demolishing the buildings, a portion of one of the shops fell without the slightest warning, and both men were buried beneath the debris. Both, however, escaped without serious injury.

THE Improvement Committee of the Birmingham City Council have appointed Mr. James Tart to succeed Mr. P. Addie as manager of the Improvement Department of the Corporation, at a salary of £300 a year, his duties in the new capacity to commence on March 1, when Mr. Addie takes up the appointment of surveyor at Bristol. Mr. Tart has been an assistant to the managers of the department for some years.

inform me how to take the velocity of streams. Some books I have been reading show it in a roundabout way, but I think there must be a quicker method. Perhaps a good work showing clearly how streams, weirs, turbines, wheels, &c., are worked and gauged, the quantity of water necessary to give motion, &c., is obtainable.—I am, sincerely yours, J. F.

Feb. 16.

The velocity of a narrow stream can be ascertained by damming across it with a plank, having a notch, say 2in. deep by 6in. wide, cut in its upper edge, this notch leading by a funnel over a bucket or other receptacle of known capacity—or the notch can be in the form of a hole, closed on the outside by a sliding door. On the plank being placed in position, the slide is raised, and the time noted which is occupied in filling the bucket. The rest is a matter of simple calculation, the object, we presume, being to ascertain the amount of water which passes a given spot in a given time. Other facts can be deduced from this by the use of formulæ given in Stone's "Hydraulics," or in Vol. IV. of "Building Construction" (Longman and Co.). The same principle can be applied to gauging a broad river, though much judgment is required in fixing the position of the weir to obtain a mean velocity.

the missing word to his dictionary, which in many respects is valuable. Here and there, however, in testing his pages, one comes upon

A CERTAIN LOOSENESS OF DESCRIPTION,

or want of specialising, which is apt to be baulking to students. Gargoyles, for instance, are not to be correctly described as projecting "horizontally" from roofs or gutters. A more exact description would have put it that they project at an angle, slight, possibly, but still an angle. How else are you to get your water off those gutters? Take, also, the term "gantry." The author says "in carpentry," and goes on to describe the well-known timber-framing seen so frequently in London streets when buildings are being put up or demolished. He omits the engineering description of "gantry," which, now that an architect to be up-to-date must be also something of an engineer, should find a place in these pages. Perhaps the most outstanding iron and steel "gantry" to be instanced is the long one on which the Liverpool overhead railway runs. There are, in addition, "travelling gantries," and the newer type of junction signal-boxes on railways, in London at least, are mounted on steel gantries spanning

* A Technical Dictionary of Terms used in Architectural Design and Building Construction. By R. S. Burn, architect. London: Ward, Lock, and Co. B. T. Bateford.

Trade and Craft.

TRADE MARKS.

According to cable advice just to hand from America, the Diamond Steel Co., of Finsbury Pavement, London, E.C., and St. Louis, Mo., U.S.A., have won a trade mark suit in the United States Court of St. Louis which has been pending between them as defendants and the Pittsburg Crushed Steel Co., of Pittsburg, Pennsylvania, as plaintiffs. Both parties are makers of an abrasive material used for stone sawing and rubbing, metal and glass rubbing, and similar purposes. The Diamond Steel Co.'s trade mark consists of an irregular crystal with radiating lines of light, and has, by the fact of being so well known throughout the whole trade, become a symbol for the Diamond Steel Co. products. The mark under which the Pittsburg Crushed Steel Co. has sold their products in America is a lozenge or rhombus with the letter "S" in it. By aid of some clauses in the American law referring to "unfair competition," they have since August, 1895, been trying to persuade the Law Court of the United States that the Diamond Steel trade mark was an infringement of theirs. But in the end the attempt has proved unsuccessful.

TENDERS.

ALNMOUTH.—For the erection of a house, Argyle-street, for Mr. Chas. Nettleship. Mr. G. Reavell, jun., architect, Alnwick.

Masonry.—John Armstrong, Lesbury, Nor-
thumberland... £213 17
Joinery.—Done by employer.
Plumbing.—Wilkin and Dickman, Alnwick... 45 19
Tiling.—Jos. Purdie, Alnwick... 32 17
Plastering.—Thos. Darling, Alnwick... 48 18
Painting.—Jas. Wallace, Alnwick... 10 9

BRISTOL.—For the erection of schools, Hotwells, for the School Board. Messrs. La Trobe and Weston, architects, 20, Clare-street, Bristol:—
H. A. Forse... £2,375 W. Church... £2,267
E. Walters... 2,375 J. Perkins... 2,260
E. Clark... 2,325 Geo. Humphreys... 2,167
E. Love... 2,287 *Accepted.

Plumbing.
S. Mason... £198 19 3 1/4 H. Povey... £141 0 0
J. James... 165 0 0 G. F. Tuckey... 185 0 0
J. Wilkins... 145 0 0 A. Scull... 184 10 0
[All of Bristol.]

CHINGFORD (Essex).—For erecting a block of three shops at Chingford. Mr. J. Edward Still, architect, 82, Queen-street, E.C.:—
Oliver... £4,395 Castle and Son... £3,660
Dabbs... 3,900

CLOWN (Derby).—For additions to schools, for the School Board. Messrs. Rollinson and Son, architects, 13, Corporation-street, Chesterfield:—
G. Haynes... £270 0 0 C. Levick... £267 15 0
J. Turner... 766 8 0 J. Fidler... 696 0 0
J. Collingham... 761 0 0 J. Jackson, Whitwell (accepted)... 632 19 2

LONDON.—For making up private roads, for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor to the Council:—

	Queen's-avenue (First Section).	Mattison-road (Second Section).	Bedford-road.	Eastfield-road (extension of).
Nowell and Robson	£3,737 0 8	£252 14 0	£1,025 4 0	£234 6 9
Mowlem and Co.	3,636 19 6	931 13 1	1,000 17 1	325 1 1
J. A. Dunmore	3,615 11 6	923 12 6	997 6 6	327 8 8
Neave and Son	3,573 2 6	922 19 2	979 18 0	318 2 11
Williamson and Son, Limited	3,571 0 0	914 19 6	985 9 0	324 0 0
E. and A. J. Nicholls	3,563 3 0	916 0 5	979 0 0	321 4 8
Geo. Bell	3,560 0 0	918 0 0	978 0 0	317 0 0
J. E. Bloomfield	3,557 2 6	918 15 6	978 3 8	316 7 0
F. A. Jackson and Son, Limited	3,556 0 0	911 0 0	981 0 0	316 0 0
Killingback and Co.	3,555 0 0	907 0 0	983 0 0	319 0 0
W. Griffiths	3,547 13 2	901 3 0	970 5 5	311 6 2
Thos. Adams (accepted)	3,387 13 11	874 15 2	944 7 9	324 4 0

DEVONPORT.—For alterations to business premises, 16 and 17, Cumberland-street, for Messrs. Josiah Clark and Son. Mr. Edgar M. Leest, architect, 109, Fore-street, Devonport:—
T. Jenkin and Son... £158 15 1/2 W. J. Oliver... £145 0 0
S. Perkins... 140 10 [All of Devonport.]

DOVER.—For the erection of boiler-house, &c., Marine Parade, for the Town Council. Mr. H. E. Stillgoe, C.E., Town-hall, Dover. Quantities by engineer:—
R. W. Paramor... £1,099 0 0 Locking Joint, Read-Austen and Lewis, 1,078 5 10 ing (accepted)... £975 0 0

DUDLEY.—For the erection of grammar school and house, St. James's-road, for the Governors. Messrs. Woodhouse and Willoughby, architects, 100, King-street, Manchester:—
R. Wilcock... £3,265 0 W. H. Gibbs... £7,120 0
C. A. Horton... 7,769 0 J. Harley and Son... 6,900 0
H. Gough... 7,510 0 J. Buxton... 6,800 0
G. Brown... 7,385 0 J. H. Whittaker & Co. 6,700 0
R. Thompson... 7,372 0 Webb & Round, Dudley (accepted)... 6,675 0
Holland and Son... 7,290 0

EAST MOLESEY.—For making up Seymour and Beauchamp roads, for the Urban District Council. Mr. J. Stevenson, Surveyor, Council's Offices, East Molesey:—
Free & Sons, Wimbledon... £294 [Clift Ford (informal)] *Accepted.

ELTON.—For the erection of an inn, for Messrs. J. W. Cameron and Co., Ltd. Mr. E. A. Whigham, architect, 59, High-street, Stockton-on-Tees:—
H. F. Linton and Son... £2,216 2 1 A. J. Cooke... £1,958 0 0
A. Atkinson and Co. 2,116 9 10 Tees... 1,877 0 0
*Accepted.

FINEDON.—For erecting six houses, Banks and Well-street, Finedon, for Mr. C. Lilley. Messrs. Mosley and Anderson, architects and surveyors. Goodyear-chambers, Northampton, and Finedon. Quantities by the architects:—
T. and C. Berrill... £1,496 0 A. J. Ball... £1,260 0
Coates and Son... 1,420 0 J. Nicholls... 1,199 10
S. Abbott... 1,367 0 Johnson and Son... 1,199 10
F. Henson... 1,350 0 Earls Barton*... 1,199 0
T. Chapman... 1,298 0 *Accepted.

FINEDON.—For erecting a dwelling-house, with shop, etc., Wellington-road, Finedon. For Mr. T. Holly. Quantities by the architects:—
T. and C. Berrill... £215 T. Chapman... £245
R. Marriott... 749 F. Henson, Finedon*... 640
A. J. Ball... 675 *Accepted.

HENDON.—For the supply of about 18 tons of 5in. cast-iron pipes and specials, for the Urban District Council of Hendon. Mr. S. Slater Grimley, engineer:—

	Sewage Outfall Works.	Hyde Sewerage flanged pipes per ton.
Macfarlane, Strang, & Co.	27 0	213 10 0
Pulsometer Engineering Co.	6 10	14 10
E. and W. Haley	6 0	10 0
Stanton Ironworks, near Nottingham	5 10	13 0
Blakeborough and Son		9 17 3
		9 10 3

KIRKCALDY (N.B.).—For the construction of reservoirs, &c., for the Waterworks Commissioners of Kirkcaldy and Dysart. Mr. W. D. Sang, C.E., Kirkcaldy:—
James Osborne £108,505 4 1 Alex. Brunton
and Son... £74,946 0 10
Sons... 97,250 2 0 Andrew Waddell
Thomas Peattie... 95,667 9 3 and Son... 74,232 3 5
J. Mackay & Son... 86,517 7 2 William Wilson... 73,928 17 3
Alex. Fraser... 69,626 6 5
Robert Gilmour
Jun., Kirkcaldy... 75,259 12 0
*Accepted.

LONDON.—For alterations, dilapidations, and fittings at the "Mercury Arms" public-house, Jubilee-street, Stepney, E., for Mr. R. C. Blow. Mr. Fred. A. Ashton, architect, 177, Romford-road, Stratford, E.:—

	Alterations, &c.	Fittings.	Total.
A. E. Symes	£1,030	£628	£1,658
R. Williams & Son	919	715	1,634
H. Wall & Co.	894	654	1,548
J. & H. Cocks	863	626	1,489
W. Harper	873	601	1,474

LONDON.—For the reconstruction of the Holborn branch of the Fleet sewer, for the London County Council:—
J. H. Neave... £14,469 17 3 J. J. Dickson... £12,933 9 1
T. Adams... 13,763 2 9 J. Mowlem & Co. 10,688 0 0
Pedretti and Co. 13,311 16 3 E. Iles... 10,392 15 0
F. A. Jackson & Son, Limited... 13,299 2 9 C. W. Killingback and Co. 9,978 13 5

LONDON.—For the erection and completion of an infirmary for 800 beds, with the necessary alterations and additions to form the present buildings into a nurses' block, &c., on the site of the late Smallpox Hospital, Highgate Hill, N. Mr. William Smith, architect, 65, Chancery-lane, London, W.C. Quantities by Mr. H. Dow White, 52, Finsbury-pavement, E.C.:—

	Extra if walls of wards above dado faced with glazed bricks.
F. Gough and Co.	£208,045
Patman and Fotheringham	201,474
Leslie and Company	199,707
Chessum and Sons	198,450
H. Martin (Northampton)	197,492
F. and M. Patrick	195,547
Charles Wall	195,000
C. Gray Hill	196,500
Kirk and Randall, Warren-lane Works, Woolwich	181,523
	4,529

*Accepted.

THE SOCIETY OF ARCHITECTS.

FOUNDED, 1834; INCORPORATED, 1893.
The FOURTH ORDINARY MEETING of the Society of Architects, for the Session 1897-1898, will be held at the Rooms of the Society, at St. James's Hall, Piccadilly, W., on THURSDAY, FEBRUARY 24th, 1898, at 8 o'clock p.m., when a paper will be read by Mr. G. A. T. MIDDLETON, A.R.I.B.A. (Member), entitled, "EGYPT THE BIRTHPLACE OF ARCHITECTURE," illustrated by Limelight Views. LADIES' NIGHT.

ELLIS MARSLAND, Hon. Sec.
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17 1/2 x 3 x 2	8 9	7 11	11 8
17 1/2 x 3 x 1 1/2	6 9	6 0	9 1



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THE BUILDERS' JOURNAL ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS

An Architectural Causerie.

One's Second Client.

ONE'S unusually lavish experiences of early clients brought one to the conclusion that the British Public, or that section of it from which early clients are derived, were divided into two parties: those who regarded one seriously, and those who took one lightly. The former believed one had adopted the Profession as a recreation; the latter that one had become an architect for fun! One's second client (who, like one's first, sprang from a friend) was of this last order. He remarked how "nice" it must be; one replied, "Oh, it's 'nice' enough when there are plenty of jobs." One's client carried this saying away with him to his suburban residence, and appeared to keep it warm in his mind so that it took root there, and began to swell and germinate, with the result that a few days later one's client, with a flashing eye and a burning cheek, cast himself precipitously into one's presence, and revealed his interesting condition. He had determined to build himself a house—an ultra-suburban house, by his description. One assured him he could not do a more sensible thing. One called him "old chap!" That overwrought him, and he gabbled; but one caught his enthusiasm; one also caught an inkling of the sort of house he desired. Without delay one began to plan one's first commission. One made sketch plans and elevations. One's client sucked their blood, and flung their discarded bones from him. They served to whet his appetite. One prepared others. By that time his views as to what he wanted were completely changed. He ceased to gabble; he became discriminating, and abounding in logic. More sketch plans and elevations. He ceased to visit one's office. One used to travel out by a suburban line with rolls of drawings, hurry through a rather bad dinner, and then sit till midnight following one's client round and round in a circle of objections and suggestions. A lot more plans and elevations. One's client became uneasy about the staircase; he could not get rid of the idea that there was a step too few. Upon the occasion of these interviews it became customary for one to open regularly with a lecture on staircases, illustrated by diagrams. Some more plans and elevations. One's client, having exhausted his own ingenuity for raising questions and suspecting errors, began consulting his friends; and after dinner he would produce old envelopes scribbled over with various house-building scares gleaned during the day. One's enthusiasm was long since dead; one grew weary of the whole business. More plans and elevations. One's client had at last exhausted his powers of dissent, so far that upon one evening the staple object of discussion was a distrust and terror he had of ceilings and doorways. He was suddenly filled with a horror lest he should bump his head. In turn every part of the design was subjected to the inquiry: "Would one's client bump his head there?" At last he began to show signs of giving way; one snatched an opportunity and won his permission to prepare the contract drawings.

Then a change seemed to come over one's client. When one met him, he seemed a weary—as though a great joy had gone out of his life. Finally, when it came to the matter of getting tenders, one's client said he wished to consider the matter; it was no good being in a hurry; it was possible he might not be able to build just yet; he had not made up his mind. In the end he told one, in a tone of cheerful resignation, he had been obliged to give up all idea of building his house for many years to come, but he would be glad to keep the drawings as a memento. One's client was piqued at one's disappointment, but it was when one sent in one's little account that one gave him the cruellest stab of all. One's claim was very much less than one was entitled to make—it was payment only for a fraction of the time and work he had demanded of one; but one's client was crushed and broken in spirit by it; he felt he had cherished a viper in his breast, and resented one's ingratitude; but the manner of his resentment lacked dignity. It took the form of beating one down and haggling for odd sovereigns. He wrote profusely, but he never called. For three weeks, one lost on an average 4s. 9d. a day off one's little account. A hardened

Eleven months later the finishing touch came that was to crown one's second client king of all one's other early clients. One morning one opened a letter from him couched in friendly and familiar terms. Its tone of frankness indicated as though the trouble had been forgotten. One's client had written to say that he had introduced one's name to a friend who was enlarging his bank premises, and, as the work would actually be built at an early date, he had no doubt one would be ready to return the fee he had paid one in consideration of the introduction. One answered that letter by return of post. One has never since heard of one's second client, nor of his friend the banker.

B. C.

An Old Grievance.

THE unsatisfactory result of so many architectural competitions is a standing grievance, and the source of perennial complaint. Does it ever occur to us that there may possibly be a complete misunderstanding between the promoters and the competitors, which may partly account for this? When a competition is advertised,



Pounds
Bridge.
The Land.

business man would have been worn away by the process. One's client had tipped one at school—he held a trump card in that. One heard from a mutual friend of one's client's anguished sense of wrong. "Here's a young fellow," he had exclaimed, "here's a young fellow only qualified a year or two; with no standing, no fortune, and everything to make. I've given the fellow his dinner—I was glad to do that—but I've sat here with him till midnight dozens of times giving him the benefit of my experience, and now here he's charged me thirteen guineas, if you please, and the house not even built!" Finally, when he had reduced one's fees by half, one lost patience, and referred him to one's solicitor. A fortnight later one got one's account in sovereigns instead of guineas, and in the form of a second-hand cheque and a postal order. One's client dropped into the great mbo of lost friends, and one forgot him.

we are too apt to imagine that the promoters thereof want a building that is Architecture, as we understand the word, when they more probably want something that is Architecture as they understand it, which seems to be a different sort of thing. Do the promoters want one thing, while the competitors do their best to supply them with another? It is needless to point out that a building may be substantial, sufficiently convenient in plan, and have an appearance calculated to tickle the palate of a vestryman, and yet not be Architecture. Might not this be, to some extent, the reason why promoters so often go behind the award of the assessor? A design may be chosen which shows some grasp of the programme as a whole, that has a good general scheme of construction, which is expressed on the elevations with dignity and reticence—in short, that is a work of Art. The promoters may prefer another—for a

thousand foolish reasons that have nothing to do with the case—that, whatever it may be, is not a work of Art. Now, if this is the sort of thing they want, there is no practical reason why they should not have it, only they should not advertise a competition for architects, because it is misleading. An architectural competition is a competition in Architecture, and Architecture is the Art of building; architects are men who practise this Art. This is a distinction that should be appreciated and borne in mind; the architect who practises the Art of building, as distinct from the man who practises the practice of building. Do the promoters of most competitions really want a work of Art—Architecture—which is one thing, or do they want a building that merely answers certain requirements and fulfils certain conditions?—which is another thing. This is a point that should be clearly understood from the first, then we should know how we stood. If a work of Art is required, it is imperative that the conditions be such as render Art possible, which is not often the case; but if what is wanted is a sort of packing-case, into which the accommodation can be crammed in a more or less convenient manner, with no more real expression on its exterior than is usually to be observed in a packing-case, this does not come within the definition of Architecture, and consequently does not concern architects. It is possible that invitations are often issued to "architects" for lack of a more exact word—that they do not mean what we mean by this term. When an architect happens to compefe, therefore, he finds himself out of his element, and need not be too much astonished if his Art is not appreciated, considering it was never asked for or wanted. It may sometimes happen that his arrangements suit the popular idea, and so he may win, and the promoters, without knowing it, get more than they wanted; but this is just pure chance. In regard to many recent competitions, judging from the conditions issued and the award that is afterwards made, we can only feebly wonder what it has to do with architects, and where the Art comes in. This is not as it should be, but this is how it is, and it is as well to recognise the fact. Why can it not be clearly and definitely stated in the conditions of every competition—particularly in such as have been drawn up by an assessor—whether Art is really wanted or not? then we should know what to do. If it is wanted, we should expect to find everything arranged with that end in view, and to see the award go to a work of Art. If it is not, then an architect competes at his own risk, and must expect all he gets. Let us have the rules of the game laid down at the beginning, and mutually understood and abided by, then we shall know whether it is worth our while to take a hand.

A. R. J.

THE plans prepared by Mr. Harpur for the alteration of the Cardiff Post Office for municipal purposes have been approved.

AN inquiry has been held at Hyde into an application by the Corporation for power to borrow £15,400 for private street improvements, and for the Board's approval to the disposal of certain lands.

A NEW mission hall and parish room has been opened at Cutnal Green, Droitwich. The room has cost some £300. Messrs. L. Shepard and Sons, of Worcester, were the architects, and Messrs. Emuss and Harris, of Droitwich, the builders.

THE contract for the construction of the new Leith line to the foot of Leith Walk from Abbeyhill, which forms part of the North British Railway Waverley Station Improvements Acts, has been let to Messrs. James Young and Sons, Edinburgh. The contract price is between £90,000 and £100,000. It is stipulated that the line is to be finished by 1900.

EXPRESSION IN GREEK ART.

By J. F. WHITE, LL.D.

IT is often said that Greek Art excels in beauty, symmetry, and form, but lacks expression. The first part of the statement, remarked Mr. J. F. White, LL.D., in lecturing at Dundee on "Expression in Greek Art," no one would deny; it was the latter part that he would deal with. There were two forms of expression—that which was permanent and abiding, which a painter sought to give to the portrait of a man; and that which was the passing expression of some transient feeling of joy, or sorrow, or surprise. In the fifth century before Christ, the Greeks dealt with the abiding expression; in the fourth century they developed into the more fleeting and transient expression; in the third and second that practice became greatly exaggerated; and in the first it was carried to such an extent that it led rapidly to decay. It must be admitted that it was extremely hard for Christians and moderns to get into a position

FOR VIEWING THE GREEK MIND.

With their different ideas of life and death and a future state it was difficult for them to get at the intellectual and moral standpoint of the Greeks in regard to these subjects. People of to-day must be careful when saying that the Greeks did not express in sculpture the attitude of the gods to them. People to-day were so much imbued with the fables and foibles of the Greek gods that it was hard to believe that in the fifth century B.C. the Greeks did believe the gods they worshipped in human form were the rulers of the world. Zeus was to the Greeks the saviour of the world, and mercy and justice sat on his throne. Mr. Farnell, in his recent book on "The Cults of the Greek States," went so far as to say that the belief of the Greeks, so far as Zeus was concerned, was a modified monotheism; but he (the lecturer) would go further, and say that, with exception of the excrescences that disfigured Greek life, their moral law was not so widely different from that of Christians. It was Zeus and Athene, his daughter, the goddess of wisdom, who guided the people in the way of civilisation, that Pheidias tried to embody in his great statues in the fifth century. That he succeeded fully antiquity told them. Lucian said Pheidias made a revelation of Zeus to the Greek mind; and Quintillian said he added new dignity to religion.

EXPRESSION WAS OF SLOW GROWTH

in Greek sculpture, for the Greeks were extremely conservative, notwithstanding their love of new things, and they studied principally at the games, so that the face was neglected owing to the attention given to the body. Mr. White remarked on the dignity of expression given in statues to dying Greek warriors, and the absence of the expression of pain except in the case of enemies. The only difference the Greeks made was in favour of the Amazons, whom they represented as fine and dignified women. He also spoke of the sad expression on the features in their tomb sculpture, and said they thought that the dead would continue their ordinary life. If Ruskin had seen these pictures he would not have said the Greeks were incapable of expressing sadness in the presence of death. Passing on to treat of the change from the ideal to the realistic, which marked the fourth century—from the wars with the Titans and Centaurs to the subjects of everyday life—he spoke of the work of Praxiteles, and then dealt with Scopas, who carried emotion almost to passion, and which found its full development in the Laocoon, in which there was an expression of agony that was painful. That led to a reaction which went back to the true traditions of the fourth and fifth centuries and to the formation of an eclectic school. As a result of this reaction they had the Venus of Melos, in which they found the monumental character of Pheidias the grace of Praxiteles, and the emotion of Scopas.

"NATURAL ARCHITECTURE."

By PROFESSOR AITCHISON, R.A.

THE annual dinner of the Cardiff, South Wales and Monmouthshire Architects' Society was held a few days ago at Cardiff. Mr. C. B. Fowler (president) occupied the chair.—Canon Thompson, D.D., submitted the toast of the evening, "The Local Society and the Royal Institute." The citizenship of Cardiff was something to be proud of, and those who had watched its progress during the last quarter of a century knew what a critical period had been gone through in laying the foundations for a great community, and that was no small incentive to members of the architectural profession who had made themselves distinguished, or to others who were to become distinguished in the future. After referring to Architecture as being, next to literature, the most eternal of the Arts, the reverend gentleman advised a close study and the acceptance of the Renaissance style as compared to the Gothic, because of its perfect symmetry and exquisite proportion.—Professor Aitchison, R.A., following the chairman in reply, said it was the duty of local societies to follow the particular forms in Architecture that were most suitable to the districts in which they resided, because the buildings must be associated in some form or other with the scenery and surroundings. The Royal Society had done a great deal, and hoped to do more, in the direction of gaining an intimate knowledge of the Architecture in different parts of the world. Its examination for associates was most valuable, and he was pleased, when in Brussels recently, to hear the encomiums passed upon the standard and character of the work of these associates. The ideal of architects was to make their buildings like Nature makes her own, and while making them beautiful yet endow them with a strong character. The charms that could be added to Architecture were such that no effort was too great, in his opinion, for those who possessed the genius to bestow it upon their country. The greatest makers of Architecture provided examples at a time when the people were trying to give the greatest attention to form and character, and most of those were in temples built to their gods. If the lessons thus taught were added to the lessons taught by Nature, they must make an immense advance. Before long he believed that the younger generation of architects would suddenly burst forth into an enthusiasm that England has never before seen, and with the Divine gift of genius would spare no time to bring it forth, so that England may be like Greece, Rome, Italy, and France—a place where the people come to admire that which is high, noble, and beautiful. In conclusion, he again hoped that England would be one of the countries that people from all parts of the world would visit to see how its high expressions of beauty and utility are cultivated.

POUNDS BRIDGE.

POUNDS BRIDGE, which we illustrate on our front page, is one of the many good examples of half-timber work which abound in the neighbourhood of Tunbridge Wells. It is within a walk of Penshurst Place, the ancient seat of the Sydneys, and the picturesque village of that name, which ever attracts the architectural enthusiast. Pounds Bridge, now an inn, was probably the residence of some servant of the castle at Penshurst. It stands at the junction of three roads, down one of which its front can be seen through a short avenue of trees. The scenery round is picturesque to an almost romantic degree, with wooded dales, spotted with pretty villages made up of cottages of a similar type; with occasionally, the additional charm of a grey and ivy-clad church. Many delightful hours may be spent in the district with sketching book and camera, and the student of ancient domestic Architecture will find here a happy hunting ground.

THE CONSTRUCTION OF FIVE FAMOUS DOMES.

BY JOHN A. MARSHALL.

V.—THE DOME OF ST. PAUL'S, LONDON.

It cannot have been overlooked that each succeeding stage of domical development, as illustrated in these papers, affords evidence of an increasing disposition to give to the dome a more imposing appearance externally. It was mainly with a view to the attainment of this object that the innovations about to be noticed were introduced in St. Paul's. At the same time, the claims of the interior could not be ignored, and thus both the increase of the external elevation and the restriction of the internal height became important factors in the design.

In each of the four examples already considered, alike when viewed from the inside and the outside, practically the same dome is seen; and it certainly seems most fitting that one should serve for both roof and ceiling. But, as has been ably pointed out, if one dome is to serve both these purposes, it cannot be made "artistically perfect"; for, if the height be restricted to what looks well from within, it will be too low for external effect, as seen in the Pantheon and in Sta. Sophia; on the other hand, if elevated so as to be imposing externally, the interior will either be lost in obscurity, or, at the best, appear quite disproportionate; of this St. Peter's is an example. The dome of the Duomo comes most nearly to satisfying these contrary requirements; and the architect of St. Paul's has also kept, in its interior, the same proportions, i.e., two diameters in height; while, for external effect, he has provided a separate and distinct dome, making the height equal, in proportion, to that of St. Peter's. The great depth of the intervening space seemed to demand the provision, between the domes, of some other and independent support for the stone lantern, and to this necessity we are indebted for that master-stroke of genius—the introduction of the cone.

The general design of the Dome of St. Paul's bears unmistakable indications of a careful study, by Wren, of the great work of Michael Angelo. But the English architect aimed—and, it must be admitted, with considerable success—at the production of the desired effects by the use of the slightest materials compatible with sound construction. Evidence of this is also traceable in the supporting structure, where even the piers are so arranged as to offer the least obstruction.

The leading idea for the central compartment is a regular octagon, open at all sides to the several extensions.

Imagine four massive piers rising from the angles of a square, and occupying the same ground area, as do those in St. Peter's. The aisles, however, instead of terminating dead against them, as in the earlier church, are continued through to the central compartment, thus effecting the subdivision of the four supports into twelve separate piers. Eight of these, each 28ft. 6in. by 15ft. on plan, circumscribe the octagon; the remaining four occupy the outer angles of the square. The latter are built hollow, and take none of the superincumbent weight; their primary purpose being to resist the thrust of the barrel vaults, which, at the height of 65ft. from the floor, span the four main openings. With a width of 40ft., each of these occupies nearly the whole of one side of the octagon; while, to correct the apparent weakness of the supports at the angles, the intermediate openings are reduced in width to 28ft., and divided into two tiers; the recesses beyond, formed by the intersection of the aisles, being vaulted by semi-domes. To secure uniformity in the pendentives which spring from the angles of the octagon, the arches over the upper tier extend beyond the openings, so as to range, and in size correspond with those on the other four sides.

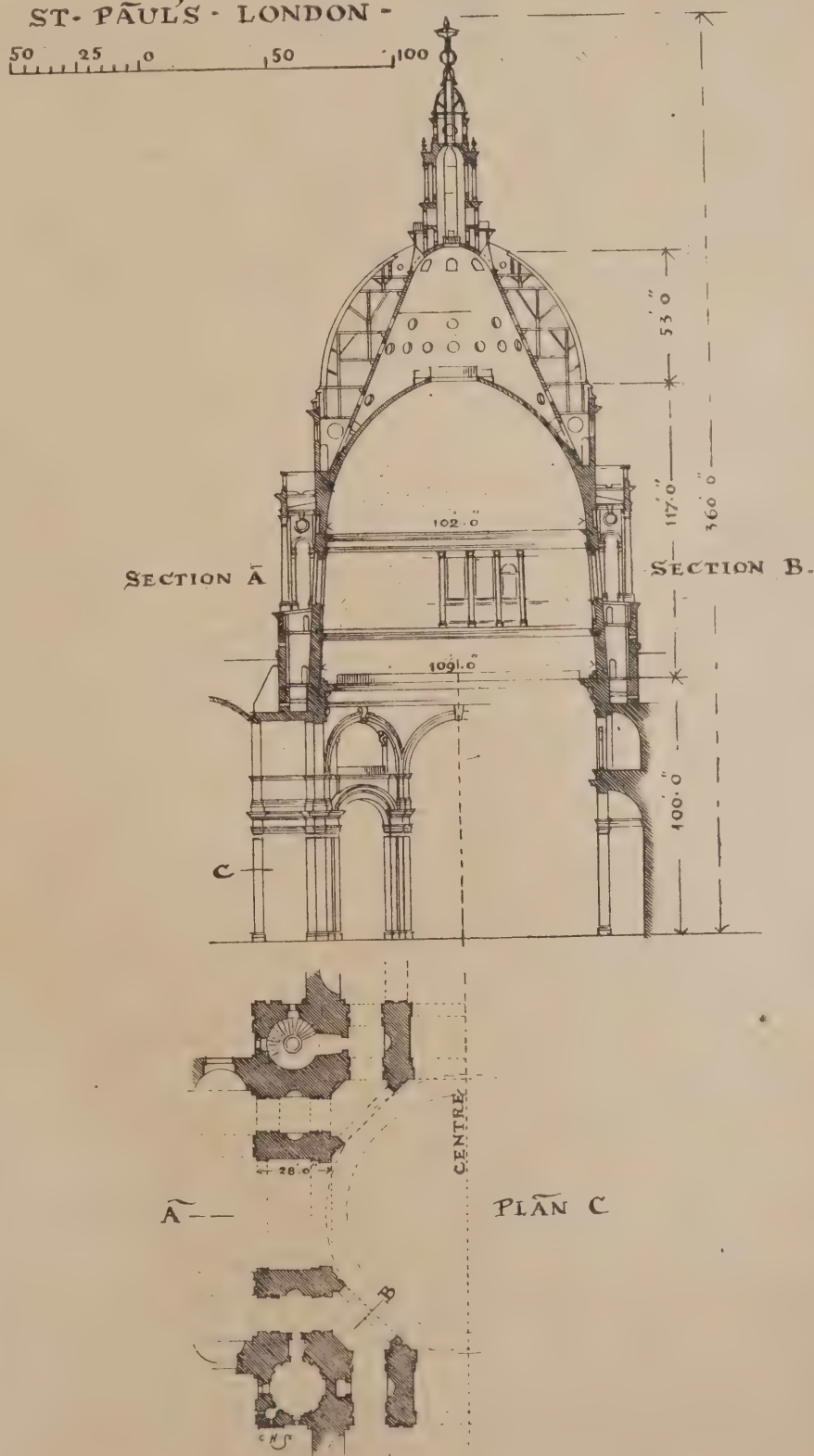
At this stage is seen what is the least satisfactory portion of the whole design. The

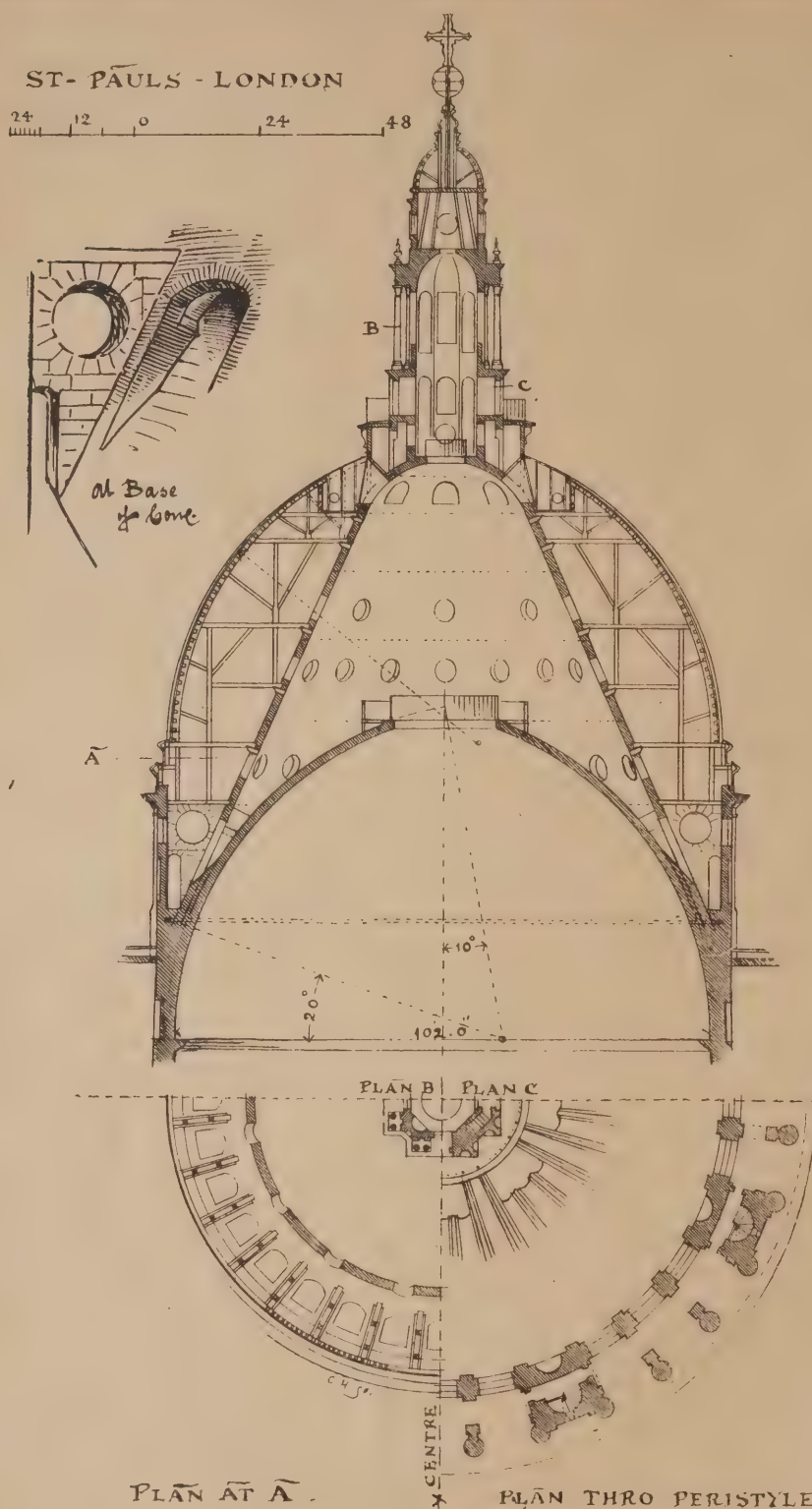
width of the main extensions is so contracted as to be out of all proportion to the central compartment; and, in making the openings to these extensions as wide as possible, the whole eight arches are brought so closely to each other as to give, at first sight, the appearance of the superstructure rising from eight mere points. This impression is somewhat modified by the wall of the drum being set back from the inner face of the octagon, which arrangement admits of the formation, at the height of 100ft. from the floor, of what is popularly known as the "Whispering Gallery." Another, and a more important, result is that the pendentives by which, at this level, the octagon is converted into a circle are relieved of all weight beyond that of the cornice and balustrade of the gallery. The great projection of this cornice assists still further in disconnecting the upper part of the design, and the apparently weak supports below.

From this level the influence of St. Peter's becomes still more manifest. The drum is divided into two stories—the basement, which is quite plain, and the upper story, enriched with the peristyle, and pierced with windows. The basement is of much lighter construction than that of St. Peter's; and consists of a thin wall, concentric with, and about 8ft. distant from, the inner wall of the drum: the two being connected by piers, on which are erected the counterforts of the peristyle. Round the outer wall, at intervals, are placed low buttresses, which are concealed beneath the roofs and afford a broader base for the superstructure. The space between the walls—containing galleries—is covered with a flat roof of timber, overlaid with lead.

A peculiarity of the drum must not pass unnoticed. This is the slight inward inclination of its wall, which gives to it the form of the frustum of a cone. This innovation may have

ST. PAUL'S - LONDON -





been introduced with a view, primarily, to its effect on the foreshortening; but it cannot fail to increase the resisting power of the drum. The height, from the level of the "Whispering Gallery" to the springing of the dome, is 60ft.; the internal diameter at the bottom is 109ft., and at the top 102ft.; the thickness of the wall above the basement is about 4ft.

The peristyle of St. Paul's is far more elegant than that of St. Peter's. The grouping, in the earlier instance, gives place, in the later, to equal inter-columination, and the entablature is carried round in an unbroken line. Each column, instead of having a solid backing of masonry its whole height, has only its upper part connected with the inner wall, and this in a manner so unobtrusive as hardly to encroach on the simple dignity of the colonnade. The architect, however, deemed it unwise wholly to rely on this slight abutment, which he increased by filling in every fourth inter-columination; and thus, at the same

time, provided facilities for staircases. The smaller counterforts are also strengthened by arching over the intermediate spaces, behind the entablature, whereon is laid the floor of what is known as the "Stone Gallery." Mr. Worthington, in his admirable prize essay on this subject (Transactions, R.I.B.A., 1890), mentions that each counterfort is secured to the drum in the upper part by two iron ties or cramps, the whole being encircled by a chain embedded in the architrave of the peristyle.

In giving to the structure greater importance externally, while preserving the symmetry of the interior, it was found desirable to raise the peristyle 15ft. higher than the inner wall of the drum. An important structural advantage over St. Peter's is here secured in the abutment thus provided to the lower dome.

In dealing with the remaining portion of the structure, it will be convenient to consider, first, the inner dome or ceiling; then the cone

supporting the lantern; and, lastly, the outer dome or roof.

The lower dome has an internal diameter of 102ft.; its radius, drawn to the vertex, makes, with the vertical, an angle of 10 degrees; and the thrust, which is consequently less than if the section were semicircular, is still further reduced by the omission of the crown, the opening being about 20ft. in diameter.

It is constructed of ordinary bricks, except that at every 5ft. in the height a course of 18in. brick passes through its entire thickness for the purpose of binding it. Having no extraneous weight to support, the slight thickness is fully adequate to all structural requirements. The haunches are filled in solid to a level of about 20 degrees from the base, and thus is provided a firm foundation on which the cone is erected.

This novel feature of St. Paul's has been justly pronounced "one of the most elegant applications of science ever introduced into a building." It meets the necessities of the case more completely than any other contrivance could have done, and that with the smallest outlay of material. It not only affords the firmest support to the lantern, but by its means the desired elevation is most readily attained. Indeed, in both these respects the capacity of the cone is well-nigh unlimited. Its form admits of its being carried to almost any height with perfect ease and safety, and it receives an accession of strength with every approach of the angle of its inclination toward the vertical. Seeing that the pressure is confined to a straight line within the thickness, the risk is not of bursting, as in a dome, but rather of spreading; and if the cone be secure at its base, the risk is—as Ware has well put it—"concentrated in the fragility of the material."

The cone in St. Paul's has an inclination of 24 deg. with the vertical, and an internal diameter of 100ft. at the bottom, and of 80ft. at the top, where it terminates in a cupola, which supplies, at the height of 90ft. from the base, the strongest form of foundation for the lantern; and is also a fitting termination to the vista obtained from below, through the opening in the lower dome. The cone is built of brick, 18in. in thickness, with six bands of stone, each containing an iron chain run with lead. A double iron chain, linked at intervals of 10ft., and bedded with lead in a channel cut in the stonework, checks any tendency to spread at the base, while also aiding to secure the dome at its haunches.

The liability of the cone, by reason of the extreme tenuity of its shell, to fracture, in case of disturbance in the substructure, is greatly increased by the weight of the lantern; and it was, doubtless, this danger that suggested the insertion of the additional ties, in stone bands, at different levels between the base and the summit. The numerous apertures in the cone, in addition to reducing its weight, answer the not less important purpose of limiting the extent of possible fractures, and also serve for lighting and ventilating the internal spaces. The power of resistance to pressure, residing in the domical termination of the cone, is severely tested. Though the thickness of the shell is only one-twentieth of its span, and though it is still further weakened by the loss of nearly one-third of its mass by openings, it has proved fully equal to the task of sustaining the enormous estimated weight of 700 tons. It must be remembered, however, that this vast weight is not borne by the crown—which is open to the lantern—but distributed over the haunches.

In a triple structure like the dome of St. Paul's, it is clear that the limitation of the weight is a question of the first importance; and, with the united weight of the lower dome, and of the cone and lantern, already pressing on the wall of the drum, the use in the construction of the outer dome of timber, rather than some heavier material, was, no doubt, recognised as a practical necessity.

In order to give to the external dome the desired elevation, a second drum, or attic story, is raised on the lower drum to the height of 25ft. above the peristyle. This additional feature contributes greatly to the general symmetry of the structure. Thin cross walls,

at intervals of about 8ft., and pierced in order to reduce their weight, connect the wall of the attic with the cone. These receive the thirty-two radiating frames of oak which support the curved ribs of the outer dome. The ribs are 11½ in. by 10 in. at the bottom, and 6 in. by 6 in. at the top. The framing is almost entirely dependent on the cone, in which, and passing quite through the thickness, are inserted stone corbels, which receive the ends of the horizontal timbers of the different stages; these timbers being fastened to the corbels with iron cramps. The ribs are tied in, at intervals, with bands of iron; while between them, at short distances apart, and following the curvature of the dome, horizontal timbers are framed and boarded. The ribs have a slight projection on the exterior; the whole of which, instead of being covered with copper, as was originally intended, is covered with lead.

To light the interior of the cone a somewhat ingenious method is adopted. In the upper part of the outer dome, every alternate couple of ribs is cut short, and eight wells are formed in the framing around the base of the lantern; thus providing accommodation for windows, through which, and corresponding apertures in the summit of the cone, light is transmitted to the space below.

The gallery of timber immediately above serves as an artistic connecting link between the dome and the lantern. The latter rises at the height of 275ft. from the floor of the church to a further altitude—including the metal ball and cross—of 85ft. Roughly speaking, at the base it is 22ft. square; the interior, which is octagonal, being about 11ft. in diameter.

In attempting to form a just estimate of the dome of St. Paul's, it should not be overlooked that in St. Peter's, where similar difficulties existed, they were, at least, honestly faced; but Wren, as if deterred by their formidable character, turned aside from the legitimate path, by disregarding, to a great extent, the capabilities of the dome. Hence, so far from St. Paul's presenting a satisfactory solution, it ought rather to be regarded as a skilful evasion of the problem.

Further, the pre-eminently scientific character of the construction has involved a great seeming waste of space (still leaving the lower dome much too high for proper effect) and has also necessitated the use of material of a perishable nature; while "the fabric"—to quote the words of an eminent authority—"is not to be safely trusted to the independent strength of its own construction." Still, taking into consideration the difficulty of reconciling the opposite requirements of the exterior and of the interior, and the ingenious application of the cone to accomplish that purpose, the architect may well be excused, and his fault condoned—if fault it be—in presence of the matchless symmetry and unequalled grandeur of the noble exterior.

HISTORICAL SKETCH.—In a report drawn up by Sir Christopher Wren on the proposed restoration of the second Cathedral of St. Paul's, appears the following passage:—"I cannot propose a better remedy than by cutting off the corners of the cross, to reduce this middle part into a spacious dome, or rotunda, with a cupola, or hemispherical roof, and upon the cupola a lantern with a spiring top, to rise proportionately." But, fortunately for Architecture, the Great Fire of 1666 occurred, and prevented the perpetration of such an anomaly as the crowning of a Gothic cathedral with a classic dome.

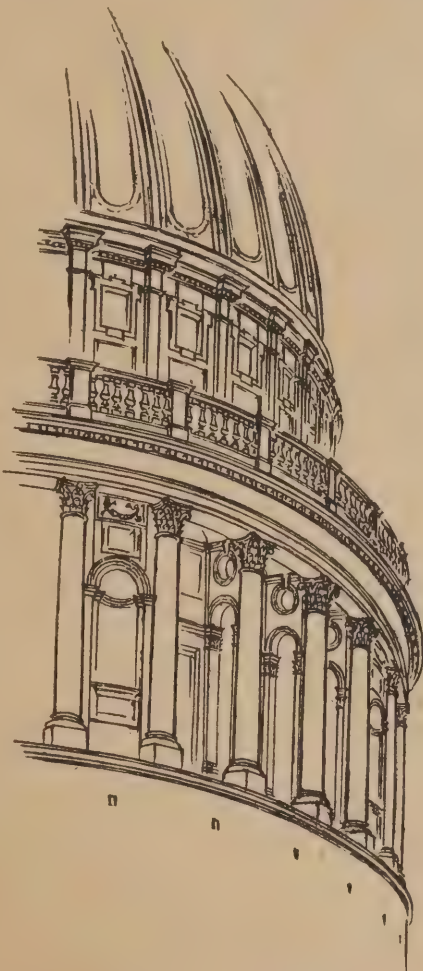
The necessity for an entirely new edifice led the Dean to give to Wren instructions to prepare a new design, unfettered by any conditions. This design was regarded with special favour by the architect himself; the clergy, however, raised objections to it; but a third design met with unanimous approval.

No sooner had the excavations been commenced in 1674, than the Chapter altered their minds, on the plea that the plan was not in harmony with the traditions of Christian Architecture. A fourth design was finally accepted, but totally transformed during the progress of the work. The first stone was laid in 1675; in 1710 Wren's son laid the last stone of the lantern.

GREAT ART WORKERS OF THE CENTURIES.

INIGO JONES, ARCHITECT.

ALTHOUGH pride of place is more frequently bestowed upon Sir Christopher Wren as an architect, and although in this connection no one will grudge him his position, there is no gainsaying the fact, to my mind, that, although the greater in construction, he was certainly the inferior of Inigo Jones in design, and the reader can look along the pages of history and seek in vain for one who is his equal as an artistic architect, he taking first rank in England during the Renaissance period. The subject of these lines was born in West Smithfield in 1572, dying in 1652. Very little is known of his early days, but he showed such an aptitude for,



ST. PAUL'S, LONDON.

and love of, the Fine Arts, being a landscape artist of no mean merit, that the third Earl of Pembroke sent him to Italy to be educated, his parents being too poor to defray the expense. So well did he profit by the opportunity that he was invited to Copenhagen by King Christian of Denmark, as Court Architect, and he afterwards accompanied the Queen to London, when he immediately became Inspector-General of the Royal buildings, though in 1612, on the death of Prince Henry, he returned to Italy, in order to complete his studies, being

ANXIOUS TO MASTER THE GREAT PRINCIPLES which guided the Italian architects in their work, which to his mind was as near perfection as possible, a dictum to which probably many of my readers will not give too ready assent. His visit bore good fruit, for immediately on his return he produced his design for the Royal Palace of Whitehall, which, though never completed, is in the noble and grandly-proportioned Banqueting House, now devoted to

the purposes of the Royal United Service Institution, one of the principal structures upon which his fame, certainly as an artist-architect will rest. Had the complete design been carried out, it would have been the finest and largest palace in the world, and would not then probably have passed through the stages of banqueting hall, chapel, and now museum. It was not, however, in dimensions so much as beauty of design that this palace would have taken a prominent position. The only building to compare with its internal courts is the Louvre, and that is less in height and dimensions, and has not the simple grandeur of the one under notice. Externally,

THE PALACE OF WHITEHALL

would have surpassed the Louvre, Versailles, the Tuileries, &c., by the happy manner in which the angles are accentuated, by the boldness of the centre masses in each façade, and by the play of light and shade, and the variety of skyline, all obtained without interfering with the simplicity or harmony of the entire design. As the banqueting hall now stands, the only portion of the palace ever completed, it is neither worthy of the great praise or equally great blame which has been bestowed upon it, one of its greatest faults being the solecism of having two external floors to only one apartment, but had the chapel, which was to have faced it, and the other two blocks been completed, this anachronism would have disappeared. Anyway, as a grand and solid structure, with just sufficient decoration to supply the effect intended, the building is well worthy of study by young architects, designers, and decorators, and artists should note its richly painted ceiling, by Rubens, the design being the "Apotheosis of King James I." Another of Jones's works is

ST. PAUL'S, COVENT GARDEN,

"the handsomest barn in England," as he remarked when told to build a church giving the greatest accommodation for the least expense. This church, which during the past few years has been externally and internally remodelled, is spoilt, so far as its noble Eastern portico is concerned, by the blocking up of the doorway, this being necessitated through the custom in Protestant churches of having the altar at the eastern end. Through this entrance being built up and railed in, an idea of falseness is conveyed, not lessened by the inscription thereon. Among the most successful of Inigo Jones's smaller designs, and in which he excels most as an artist, is that for the Duke of Devonshire's villa at Chiswick, which was suggested by the Palladio at Vicenza, which many claim that he improved upon. However much we may disagree with this Italian style of Architecture in these days, as being unsuitable to the variable climate of England, it must be borne in mind that in those days every one was hankering after classical models, and architects and painters having to meet the demand, it was well that they took the best models that the world could produce. There are several other specimens of his work in existence in the Metropolis, among others the west side of Lincoln's Inn Fields, formerly known as Arch Row, which will well repay inspection, though many executed by his son-in-law, Webb, are ascribed to him. That

INIGO JONES WAS AN ARTIST

is evidenced also by his being employed in the painting and manipulating of the scenic devices employed in the Court Masques, many of which were written by Ben Jonson, and in which Queen Anne acted. His son-in-law, Webb, justly wrote of him "that what was truly meant by the Art of design was scarcely known in this kingdom until he brought it into use and esteem amongst us here. He was generally learned, eminent for Architecture, a great geometrician, and in designing with his pen not to be equalled by whatsoever great masters in his time for boldness, softness, sweetness, and sureness of his touches."

W. N. B.

SOUTHPORT is to have another new church. The site will be at the top of Sussex Road, and the church is to seat 500 persons.



PHOTOGRAPHIC RECORD SURVEYS.

By G. A. T. MIDDLETON, A.R.I.B.A.

THE gradual decay and rapid disappearance for improvement's sake of much that is old and noteworthy in our country, has led many of the more enthusiastic photographic clubs and societies to organise systematic surveys of their respective districts; and more permanently useful work it would be difficult for them to find to do. Banded together under able leadership, a small body of amateur photographers could very quickly produce an album illustrating a district, a town, or a notable building, with a thoroughness not to be obtained by any other means. Proper leadership would be everything, promiscuous snap-shooting would be valueless; and it seems to us that each band of workers undertaking a definite survey should include amongst its members some one with a technical acquaintance with architectural surveying.

Obviously, the first thing necessary in a survey, even a photographic one, is a plan of the building, town, or district of which a record is wanted. It may be roughly drawn, but it must be approximately accurate; and, while the ordnance map will suffice for a town or district, a building must be measured. On this plan it is advisable to mark the position of the camera for every photograph taken with a letter or number, and the direction in which the lens was pointed should also be indicated. The work of the draughtsman being thus limited, the photographer takes a series of general views from well selected points, both of the exterior and of the interior, including within these views all details which are afterwards to be reached. Sharp, clear negatives are aimed at, and these enlarged and printed by some permanent process, the positions of various features being indicated by a number, and referred to in the index.

Photographs of these features are similarly taken, and similarly printed as enlargements, the positions of minor details being again indicated by reference numbers; and finally the details are themselves photographed, generally by the aid of a comparatively small

camera, and sometimes even by a hand camera, if fairly well lit, and so capable of being taken with a "snap" exposure.

In the result, such a record of a building is secured, in a comparatively short period of time, as could in no other way be obtained—even the most exhaustive of measured drawings falling far behind it in the important respect of general comprehensibility. Everyone can understand a photographic survey—very few, comparatively, can do more than admire the execution of a measured drawing; can, as it were, re-erect in their imagination the building which it represents. More than this, the drawing, however carefully executed, is liable to error, and at least is influenced, in the effect which it produces, by the powers of the draughtsman; while a photograph is accurate to precision, if taken for record purposes and not for effect. The difficulty of scale can always be got over by introducing a portion of a specially made, plainly marked 2ft. rule, or a portion of a levelling staff; and this is a very necessary precaution, as a finely-carved piece of decoration, which measures only some 3in. across, may well appear to be as many feet, if photographed apart from its surroundings; while, when dealing with general views, approximate scale can be suggested by the inclusion of a few human figures. Such surveys as these can be undertaken not only by the photographic societies, but by small independent bands of workers, and two or three architectural students engaged upon a series of measured drawings of any building might well supplement their work by taking photographs of such details as they might not have time at the moment to sketch.

We are not advocating the substitution of the camera for the sketch-book, but rather its addition to the outfit of the architectural draughtsman, to be used either by himself, or, more conveniently, by some companion upon the sketching tour who may not be an architect, but who may have joined the party for the sake of companionship. A combination survey obtained in this way seems ideal, and the records of such should not be lost and merely put away in private sketch books. It is difficult to advise a means of preservation, nor is it our province to do so, but we throw out the hint as worthy of consideration by local architectural societies.

KEYSTONES.

A NEW public hall and offices have been erected at Hoylake.

THE new waterworks at Leigh-on-Sea, just opened, cost some £11,000.

A FINE oak pulpit has been placed in the Church of St. Mary, Bickington.

A STAINED glass window has been erected in the north-west of West Redford Church.

THE Barry School Board has schemes in hand for the erection of six new schools in the Barry district.

THE plans for a new Baptist Chapel at Huddersfield, prepared by Mr. Joseph Berry, have been adopted.

THE new Wesleyan chapel which has been erected in Bulawayo for English services, at a cost of £5000, has been opened.

SIR E. J. POYNTER, P.R.A., has been appointed one of the Royal Commission for the Paris International Exhibition of 1900.

THE new buildings of the Reading University Extension College are expected to be completed early in June. The buildings will cost £13,000.

MR. HERBERT SPENCER's presentation portrait has now been finished by Professor Herkomer, R.A., and will be exhibited at the Royal Academy this year.

THE contractors for the erection of the proposed school at Westfield have resolved to raise an action for damages against the Aberdeen School Board for breach of contract. The sums claimed for amount in all to about £1000.

At a meeting of the Plans Committee of the Aberdeen Town Council plans of property representing £38,000 in value were sanctioned. The list included a plan of a warehouse proposed to be erected by the Northern Co-operative Company at a cost of £8500.

THE following have joined the council of the forthcoming Art Metal Exhibition, to be held at the Royal Aquarium in May-June next:—Sir Arthur Blomfield, A.R.A., Mr. Alfred Waterhouse, R.A., Mr. Brock, R.A., Sir Noel Paton, R.S.A., Sir James Linton, P.R.I.P., Sir T. Gibson Carmichael, M.P., Mr. Seymour Lucas, R.A., Professor Aitchison, R.A., Mr. Ernest George, Sir W. Cuthbert Quilter, M.P., Mr. C. Purdon Clarke, C.I.E., and Mr. Lewis Day.

LEADWORK: PLAIN AND DECORATIVE.*

By F. W. TROUP.

THE great question of milled versus cast lead I am not prepared to solve, but I may offer one or two remarks bearing on the subject. We are told by the advocates of cast sheet-lead that it turns to a silvery grey or white in the course of time, whereas milled lead always turns black on the surface. I believe there is not much doubt about the latter part of the statement, and certainly the beautiful patinas on the surface of many old roofs of cast sheet-lead go in support of the first part of the theory. But I think it wants some further investigation and proof to show that cast sheet-lead under modern conditions—which, of course, includes the metal as well as the atmospherical conditions—will also oxidise to a silver grey as white patinas. The lead used in

THE ROOFS OF ST. PAUL'S

and the buildings attached to it are, and, I believe, always have been, covered with cast lead. From these roofs we might, therefore, be able to judge conclusively, as there is a constant repairing being carried out, in which freshly cast lead is used. But I gathered from Mr. Penrose and his plumber, some years ago, that the stock of old lead was adhered to and simply re-cast, and in the stock I distinctly remember seeing, piled up in the crypt, fragments of very old lead water-pipes, and even several examples of Roman pipes. An examination, therefore, of the condition of the lead on these roofs would throw light on only one half of the question, namely, how the old metal stands and how the surface "goes" when oxidising under the modern London atmosphere. "Green oak wood, from the quantity of acetic acid which it contains, should not be used in contact with lead for building purposes. . . . The vapours of acetic acid corrode it rapidly" (Miller's inorganic Chemistry). As soon, however, as you come to ornament lead work, there is no longer any question as to whether cast or milled lead is best. With the latter you are confined to bossing, whereas in casting the sheet it is not only possible, but very easy, to imprint patterns or letters, or to ornament in the sand bed, and it is still possible to boss or beat up the cast sheet to what extent you please after the casting is complete.

TINNING AND ENGRAVING

can be done equally well on either kind of lead, but in the case of sheet lead all the work, however wrought, gains by the superior texture of the ground surface. I made some mention just now of the difference in the metals themselves, between old and modern lead. The chief difference consists in the greater purity of modern lead. Silver is frequently found in conjunction with lead ores, and formerly this was but partially extracted, but by modern perfected methods it is profitable to extract the silver if the lead contains only a few ounces to the ton. Whether this absence of silver in modern pure lead has any effect upon the colour to which the surface oxidises or wears, as some have held, I am unable to say, but I think there is no question that the old lead was somewhat harder and more self-supporting in exposed positions from its slight admixture of silver, traces of other metals with alloy being nearly always harder than the principal metal in the composition. In this connection it is interesting to note the remarks of

BURGESS UPON WINDOW LEDGES:

"Now the lead for this purpose was cast, not milled. It was also much narrower than the modern, but contained, if anything, more metal. The consequences are, that much of it is good up to the present time, while each flat board-milled window-lead, having its grain

broken by the milling, and presenting a very thin and very broad surface to the air, becomes rapidly deteriorated. At Beauvais I saw some lead which was probably put up at the end of last century quite in a state of oxidation; and at Jonnay, where the whole of the immense windows of the choir had been filled with stained glass, at no very distant period a very large expense will have to be undergone to fresh lead the whole, as nothing better than the common cottage window lead has been employed." Note here that thin lead soon oxidises and absolutely perishes altogether. The reason is very simple, and should not be overlooked. A fresh clean surface of lead tarnishes very rapidly,

WHEN EXPOSED TO THE ATMOSPHERE,

owing to the formation of a thin closer adhering film of oxide. This film protects the metal from further change, excepting that, in course of many years, it becomes (in the case of cast lead) a fine patina of variable thickness. Where the lead itself is of considerable thickness the loss of strength for this oxidation of the surface is unappreciable; but where the lead is rolled out so thin that the film of oxidised metal bears a considerable proportion of the whole thickness of the metal, it is no longer able to serve its purpose, and tears or drops away as the strain or wear and tear come upon it. Now a word as to the laying and working of lead. Whether milled or cast it matters not; there is room for much improvement of modern methods. You have only to look at the exhibits sent in by the students of the Polytechnic Classes for the prizes to see that the ideal aimed at is all wrong. The results are often wonderful and extremely praiseworthy, if only they were of any use. But the working of the lead, as at present taught, seems to me to be

LABOUR MIS-APPLIED.

What practical value is to be had from a three-branched soil pipe, beaten out of one single sheet of milled lead? The dexterity and patience required to do such work is astounding, and so is the patience and perseverance required to build a full-sized model ship inside a glass bottle—a seventh wonder to be seen in exhibitions of shop windows at times. I have, of course, taken an extreme example from what I have seen in the work of the students, but all the rest is "tarred with the same stick." Mechanical precision in lead work is not only wrong, from being labour mis-applied, but it renders the life of the metal shorter, it costs greater, often prohibitive, and certainly does no good to the woodwork it covers. Plumbers, with their 5ft. or 6ft. of milled lead, nowadays, often beat and dress it over the wood like a coat of paint. The

result is that frequently the lead cannot expand and contract freely as it should do,

TO PREVENT TEARING AND BUCKLING;

and the wood under—well, the closer you cover wood the more chance there is of dry rot, and if there is any acid remaining in the wood the more certain is it to attack the under side of the lead. I should like to see a closer following of old methods, which are invaluable, simpler, and more straightforward. My friend, Mr. Dodds, used to say he admired the old gutters, which seemed to be laid by cutting out a piece of lead the right shape and walking over it once or twice on stocking soles. That was all. Nothing more is wanted. The young plumber at the present day is taught to dress and fit the sheet hard down into every angle, and beat it close near the drip. The result is that you get the lead, as often as not, hard fixed at each end, and under a hot sun it must buckle, and under a frosty sky tear; and at each drip the water is drawn up from suction, or capillary attraction, between the two sheets of lead, and if thereby any snow is in the gutter, as likely as not the water gets up to the woodwork.

BY THE OLD METHOD

all this is left loose and easily fitting, one sheet sliding over the other where there is any expansion or contraction. There is no possibility of capillary attraction taking place at the drip or elsewhere, for the lead goes gently rounding over the drip, leaving a clear space between it and the turn-up of the underneath sheet. Nor can I see any special merit in beating things up out of a single sheet of lead when the same object can be attained more directly, more simply, and more rapidly by the help of solder. There are limits to everything, and soldering in plumber work may be overdone. But soldering seems to me to be the legitimate treatment of lead. The joining of two pieces of lead together by soldering is as pre-eminently suitable to the material as welding is for wrought iron or brazing for copper. Such problems as to beat up a rain-water head from one sheet of milled lead ought not to be set, except as a subject for students practice—a kind of study in lead working—and even then it is dangerous, as being likely to result in a

MERE DISPLAY OF MANUAL DEXTERITY

and skill, and to develop into such methods of laying and dressing lead as I have described and condemned already. After quoting the opinions of M. Felibien and Burgess on the subject of soldering, tinning, and decorating lead, the lecturer proceeded:—I would recommend those who wish to study the possibilities of the plumber's art historically to avail themselves of Mr. Lethaby's excellent little work, where they



THOMAS E. HARDY, ARCHITECT.

* Extracts from a paper read before the Architectural Association on Friday night.

will find a most interesting chronicle of the best work to be found in this country in all periods, besides invaluable suggestions and guidance for the worker in lead. I have referred very slightly to ancient examples, although, as is well known, it would be easy to discourse for hours on the multitude of beautiful examples of coffins, fonts, cisterns, pipes, pipe heads, spires, roofs, ridges, finials, &c., which remain all over this country and abroad. These form an attractive array for any student, and as every town has its examples, at any rate of the latter development of the plumber's art, an interesting study might be made of the varying types in the different localities. This, however, is not my object, and I would rather warn you against creating or reproducing old examples. What I wish to show you is the simplicity of the old methods of work, by what simple ways, almost child's play, they attained their ends. And again, from the very ease with which ornament can be applied, or wrought, to lead, you must beware of the opposite pitfall, and not imagine that you have reached the goal when you have covered your material with beautiful ornament.

LEARN THE POSSIBILITIES OF THE MATERIAL before you attempt to design in it. Architects cannot possibly study thoroughly all the materials they have to deal with, but it is always possible to study one or two, and the doing so will let in a flood of light upon all the others. This knowledge will make you very modest indeed in attempting to design with blacklead, white paper, and a "T" square. You have only to try once, by designing first on paper, and then attempt yourself to carry out the design in actuality to learn what a poisonous and deadly thing it is for a craftsman to have to follow line for line "with the architect's design." All freedom is gone; what would have been a quaint twist or an amazing blade of colour or shade, is sacrificed and killed in order to follow absolutely the black and white skeleton on paper. I say you have only to try it once, in any material you like, to find the truth of what I say. When once you have learned something about your material, paper and pencil is very useful, but you will use it in a more tentative way. Knowing that many things occur to render a slight change a necessity, in order to get the best result for what you have in hand—the drawing is but a means to an end. I cannot do better than finish by quoting from Mr. Lethaby's "Lead Work," already referred to: "New design must ever be founded on a strict consideration of the exact purpose to be fulfilled; of the proposed object, of how it will serve its purpose best and show perfect suitability to the end in view, when made in this or that material, by easy means. This, not the torturing of a material into forms which have not before been used, is the true ground of beauty, and this, to a certain extent, is enough, without any ornamentation. Ornamentation is quite another matter; it has no justification in service; it can only justify itself in being beautiful."—In the course of the lecture the casting of various designs in leadwork was illustrated, a temporary casting-table having been made for the demonstration, and this, and the appliances, were described by Mr. Troup.

(The discussion will be given in our next issue.)

TWENTY-TWO sets of designs have been sent in for the proposed technical schools to be erected in Abbey Road, Barrow.

THE new choir stalls in St. Peter's Church, Abbeydale, were recently dedicated. They are of carved Riga oak, of handsome design, by Messrs. Jones and Wills.

THE work of restoration at the Collegiate Church of St. Saviour, Southwark, has been continued since the re-opening a year ago, and further works will have to be carried out before the whole fabric can be completely restored. Among the promised gifts of the past year are several windows, which will include a Thomas Guy memorial window, the cost of which is to be raised by subscription amongst friends connected with Guy's Hospital.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

March 2nd, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Committee of the Harrogate School of Art have received the report of the adjudicators, Messrs. Woodhouse and Willoughby, architects, Manchester, upon the competitive designs for a new technical institute for Harrogate, which is estimated to cost £5600 in addition to the site. The Committee have awarded the three prizes of £20, £10, and £5 as follows:—1, Mr. W. J. Morley, architect, Bradford and Harrogate; 2, Messrs. Bland and Brown, architects, Harrogate; and 3, Mr. J. E. Marshall, architect, Harrogate.

THE report of the Committee of the British Fine Art Section at the Brussels International Exhibition last year, just issued, states that Great Britain was awarded twenty medals—in the proportion of one to sixteen pictures exhibited—being two more than given to France and only two fewer than were given to Belgium. Very few living British artists of repute, it is stated, were unrepresented, and the report, which is signed by Sir E. J. Poynter, P.R.A., expresses the opinion that the committee may be congratulated upon having achieved an undoubted success, which has come as a revelation to Belgium, and which has been echoed throughout Europe. "Our work," it is added, "will have served its purpose if it has raised the prestige of British Art abroad, and helped to encourage our artists at home."

THE "Exhibition of International Art," which is to be held in London in a few months' time, may quite possibly, if it is judiciously managed, be a very valuable display of art examples. The executive council already includes the names of many men of note in the art world, whose judgment may fairly be regarded as likely to be trustworthy. If they exercise discreetly their privilege of deciding who are to be the artists invited to contribute, and if the response to their invitation is reasonably large, a summary of the art of the world ought to be presented. The only point that remains to be considered is whether an international show is calculated to attract sufficient support from the public to make such a venture remunerative. To the great majority of people the names of even the greatest foreign masters are unknown, and therefore the work that represents these painters does not make any wide appeal. This fact may prevent the exhibition being as great a success as it might otherwise deserve to be.

An interesting discovery has been made in the Church of the "Ognissanti" in Florence. A splendid "Pieta" by Ghirlandais, has been brought to light, containing a portrait of the great Florentine navigator, Amerigo Vespucci. This fresco, which for more than three

hundred years was supposed to have been lost, contains portraits of Vespucci's family, as well as of himself. It is in a splendid state of preservation. In the lunetta is the Madonna of the Misericordia, beneath whose mantle, which is upheld by angels, kneel on either side the family of Amerigo Vespucci, both male and female; the men on one side, the women on the other. The figures are two-thirds of life size, and Amerigo himself appears as a youth of about twenty, his actual age at the time the fresco was painted. Under the lunetta is the Descent from the Cross, the Madonna kneeling, St. John the Baptist, Mary Magdalen, and other saints. In the background is a view of Jerusalem and the Cross. The faces of the saints are supposed to be portraits, and they are dressed in the style of the fifteenth century.

The sketch reproduced on page 64 illustrates a small seaside residence built of local limestone, with Runcorn sandstone dressings to windows, &c.; and upper story in half timber and rough cast, with brick backing, and roofed with Ruabon variegated tiles. The site commands most extensive views of the Llandudno Bay and Menai Straits, Anglesey and Penmryn, and has been very successfully planted with trees and shrubs. The Little Orme forms a background and shelter from the east winds. It is the home of the architect, Mr. B. Nelson.

THE Office of Works has just taken in hand the overhauling of Hertford House, preparatory to its opening to the public. It has been found that the mansion, though in every way a splendid residential structure, is in many respects ill-adapted for the effective display of the treasures embraced in the Wallace collection, and extensive alterations have consequently been decided upon. These will be proceeded with forthwith, but probably at least eighteen months must elapse before the place can be opened to the public.

INTERESTING relics of Roman Paris, the old Lutetia, have been discovered on digging 16ft. deep the foundations for a house in the Rue du Cloître-Notre Dame. There are traces, for a length of nearly 200ft., of a wall 9ft. thick at the base, and consisting of blocks of stone which had evidently served for an older building and been hastily put together. Many of these blocks bear Latin proper names, still more or less decipherable, though rudely chiselled. It is believed that these inscribed blocks were the tiers of an amphitheatre, another portion of which was discovered in front of Notre Dame in 1847. They also resemble the stones found in 1870 in the Rue Monge belonging to another amphitheatre, a portion of which was restored some years ago and converted into a public garden.

In her third lecture at the Passmore Edwards Settlement, on Delphi, Miss Harrison dealt with the omphalos or navel-stone, the most sacred of all the objects at Delphi—what it was, where it stood, and what it signified. From references to the famous opening scenes in the *Eumenides* of Æschylus and the *Ion* of Euripides it was clear that the tragedians believed the omphalos to be within the temple, and close to the tripod, and from the narrative of Pausanias we should conclude it stood outside the temple at the east end, and near the great altar. At this very point a large filleted omphalos had been discovered by the French excavators, and this, it was highly probable, if not absolutely certain, was the omphalos seen by Pausanias. There seemed little doubt that the sacred stone was moved some time between the fifth century B.C. and the visit of Pausanias. The French had also found in the treasury of the Athenians a conical white marble stone, which seemed to correspond with the stone noted by Pausanias as the stone swallowed by Kronos. This stone used to be anointed with oil, like the Bethel of Jacob, and covered with wool on feast days. A number of representations of the omphalos on vases, reliefs, and coins were shown, and the general conclusion arrived at was that the omphalos was an

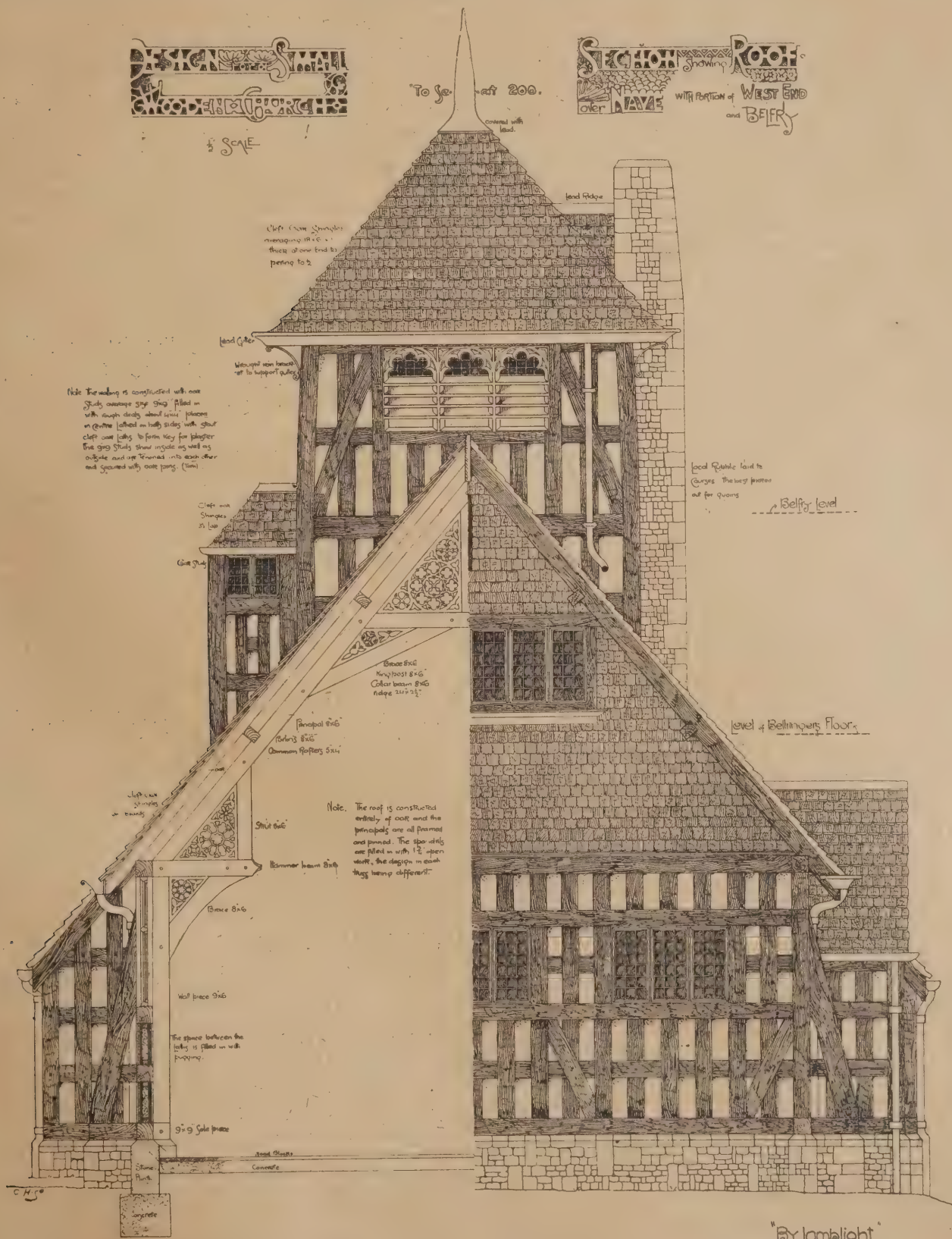
oracular fetish stone connected with the worship of Gaia, the earth Goddess, and long antecedent to the coming of Apollo.

In order to have the benefit of experience gained on the Continent and in America regarding questions of fire prevention, the executive of the British Fire Prevention Committee has invited a number of gentlemen to become honorary corresponding members; they have promised to afford every assistance in keeping the Committee informed of matters of importance relating to its work. Among these corresponding members are the Director of Public Works to the Prussian Government (Herr Hinckeldeyn), the Chief Engineer of the

City of Hamburg (Herr Andreas Meyer), the Architects-in-Chief of Vienna, St. Petersburg, and Cologne (Messrs. Berger, Luzor, and Stuebben), and, further, Chief Officer Meier, of Amsterdam, and Messrs. Gerhard and Constable, of New York. Messrs. Andreas Meyer and Constable, it will be remembered, had charge of the important fireproofing tests which were made respectively at Hamburg and New York, whilst Chief Officer Meier organised the first scientific fire congress held in Europe.

THE London County Council, at its final meeting last week, considered a report by the Housing of the Working Classes Committee containing particulars of a block of dwellings

which it is proposed to erect on the site of the Boundary Street area. Wargrave Buildings, as the block will be called, provides accommodation for 280 persons in sixty associated tenements, of which twenty contain three rooms, and forty two rooms. The architect's estimate of the cost of the buildings is £13,715 10s., and the committee asked the Council to approve of the scheme, and to instruct that the work be executed without the intervention of contractor.—Mr. White moved that the recommendation be referred back with instructions to the committee to invite tenders for the work.—Lord Dunraven seconded the amendment, which was defeated by 50 to 45 votes, and the committee's recommendation adopted.



MR. G. A. T. MIDDLETON has now made known full details of his sketching tour to the Hartz district, to which we referred last week. Intending tourists will note with satisfaction that the Great Eastern route has been adopted, as through trains in connection with the Harwich steamers are run both from York and Manchester as well as from London, thus enabling students from these further parts of England to participate with the minimum of trouble. Tickets will be available from any Great Eastern station—that is, from March by these through trains—and the travelling throughout will be second class on rail and first class on the steamer; while the hotel accommodation will be the best procurable. In the smaller and most interesting towns this will be probably of a homely rather than an ostentatious character, but in Hanover and Brunswick the accommodation will be at least as good as in towns of equal size in England.

A MEETING of the committee engaged upon the restoration of the Collegiate Church of Stratford-on-Avon was held recently. Mr. Bodley, the architect, attended to confer with the committee respecting the recently-discovered Early English lancet window, which was found when piercing the west wall of the south transept, a relic that had been hidden for nearly six hundred years. Mr. Bodley gave it as his opinion that no great sin would be committed in making the required opening in the wall, and thus doing away with the window, which was considerably mutilated. It was also thought undesirable to interfere with the plans of Messrs. Hill, who required the space for the reconstruction of the organ. The committee approved the recommendation of the architect that the new oak benches should be placed in the north and south aisles, and that the whole of the nave should be seated with chairs. It had already been decided that oak blocks should be used in place of deal for the flooring, being more in character with the church, and the hope was expressed that a donor would be found to provide new choir stalls, the cost of which was between £300 and £400.

IMPORTANT changes are, it is stated, likely to take place before long in the surveying branch of the Department of Works and Public Buildings. Sir John Taylor, who has been chief surveyor for many years, contemplates retirement from his office in the course of the next few months, and it is expected that he will be succeeded by Mr. Tanner, one of the younger surveyors. But it is believed that, although Sir John Taylor gives up the onerous and responsible office in which he has long served the Crown to the entire satisfaction of successive First Commissioners, his services will not be completely lost to the Department. It is understood that he will superintend the erection of the new War Office on what is known as the Carrington House site in Whitehall. He has had much to do with the preparation of the plans for that building, and it would be manifestly convenient for him to see them carried out. As the houses now occupied by the Office of Works in Whitehall Place will be pulled down in connection with the War Office scheme, the First Commissioner and his staff will remove to Storey's Gate in the course of the ensuing summer. It may also be remembered that Sir John has under his direction the restoration of the State apartments at Kensington Palace, which are shortly to be thrown open to the public.

THE Parliamentary Committee of the County Council reported, at the last meeting, that they were taking steps with regard to the preparation of the petition against the Westminster Improvement Scheme; but it appeared to them the Bill opened up considerations of such magnitude that the Council should not confine itself to simply opposing it in committee. They pointed out that the essentially important point for the consideration of the Council was whether or not it was desirable that the large powers sought, and the execution of such considerable works should be entrusted to a private company. The Bill would, of course, only be promoted in the

expectation of its proving remunerative to the promoters. Parliamentary precedent was against such a proposal, and there was, moreover, no guarantee, even assuming that the scheme was started, that any portion of it might not be abandoned after other portions had been wholly or partially carried out, or after a large number of buildings had been demolished. It was proposed by clause 19 that the compulsory powers might be put into operation so soon as a sum not less than £250,000, part of the capital, should be subscribed, under contract binding the parties thereto to the payment of the several sums respectively subscribed by them. Clearly it was necessary to guard against the possibility of the scheme being commenced without adequate security for its being ultimately carried into effect; otherwise the promoters might find themselves in difficulties, the undertaking might pass into a derelict condition, and it might become necessary for the Council to intervene at the cost of the ratepayers. They did not think that a scheme of this kind, involving large works of a public character, and large compulsory purchase of property, should be promoted as a private undertaking. Accordingly, they asked the Council to be allowed to take steps to obtain the rejection of the bill on second reading.—The Council confirmed the report.

THE Khedive in Council has approved a contract just concluded with Messrs. John Aird and Company for the construction of the long-talked-of Nile reservoirs. The work, which consists of a dam across the Nile at Assuan and another at Assiut, is to be completed in five years, and the contractors accept payment by annual instalments of £160,000 sterling, extending over thirty years, and beginning on the completion of the dams. The great dam forming the reservoir at Assuan will be constructed upon the granite reefs of the cataract, and will be composed entirely of granite ashlar, solid in section and pierced with sufficient openings to permit of the passage of the Nile in flood, with a very moderate heading-up. In the autumn months, after the silt-laden water has passed off, the sluice-gates will gradually be closed until the reservoir is full, which, in an ordinary year, will be in January or February. From April to the end of August, when the river runs low, the gates will gradually be opened, and the supply in the river will be supplemented by the water stored in the reservoir. By the time the reservoir is emptied, the new flood water will have arrived. Thus no break will occur in the irrigation system. The dam will be some 76ft. above the river bed at its lowest point, and the difference in the level or head of the water will be about 46ft. Its approximate length will be about 6000ft., and the amount of water to be stored is calculated at 1,065,000,000 cubic metres. Locks will be constructed capable of passing Nile steamers through the cataract. The Assiut dam is intended for raising the river level during the summer, thus increasing the distributing power of the canals in Middle Egypt and the Fayum, and it is designed much upon the lines of the great barrage north of Cairo.

A PROPOSAL to extend the Walker Art Gallery, Liverpool, is now occupying the attention of the Corporate Committee controlling that institution. In order that the pictures in the permanent collection may be hung to the best advantage, considerable additional space was no doubt required, and a new set of plans of the suggested work will be presented to the members of the Gallery Committee.

SOME important military works have been decided upon at Dover, and are to be commenced immediately. These include the erection of a block of new barracks to the east of Dover Castle, for which a contract has been settled at nearly £8000, and the construction of three modern forts on the cliffs. It is stated that the whole of the work is to be completed within about twelve months. The forts will be on the heights on either side of the town, so as to command the Channel and

cover the Admiralty National Harbour. is to be constructed to the east of Dover far from the convict prison. To the west the town two forts will be constructed, near Shakespeare Cliff.

MR. JAMES SAUNDERS, Associate of the Royal Institute of British Architects, Graduate of the Incorporated Association of Municipal and County Engineers, Associate of the Chester Society of Architects, and who is Assistant Borough Surveyor at Oldham, been elected City Surveyor and Water Engineer of Chichester.

CONSIDERABLE interest attaches to the one which is now being made to preserve on the most interesting memorials of Puritanism in suburban London by the purchase of Richard Baxter's old house at Acton. The house is just opposite the parish church, and is announced to be sold in order to clear way for building operations. It is suggested that such an interesting relic of Puritanism should not be swallowed up by the modern builder, but that it should be preserved.

AT Asti, in California, there is a reservoir 104ft. long, 34ft. wide, and 24ft. deep, which is kept full of wine. First an excavation was made in the rocky hillside. Next a wall of concrete 2ft. in thickness was put in the bottom and sides. Then came the laying and glazing of the cement. All around the sides big girders were put in place, and on these the sectional cover of the lake. This is constructed that not a ray of light can penetrate into the vast quantity of wine.

DURING excavations in Parliament Street, Nottingham, in connection with certain public works, a discovery of considerable archaeological interest was made. In the course of their operations between Market Street and Queen Street the workmen came across remains of the old town wall. It is supposed that the wall was constructed at least 800 years ago, being built of rock, in connection with which clay was used. It varied in width from 9ft. to 12ft., as far as recent observations throw light upon the matter. Starting from the Castle it ran, by way of the Postern Gate, to Park Row, ultimately crossing Chapel Bar in Upper Parliament Street, whence it proceeded in an oblique direction. Fragments were discovered some years ago opposite the site attached to the Black Bull Inn. Proceeding by way of that which is now Market Street, a point about 14ft. distant from the Monument statue, its course was then towards the site of the buildings which, until recent years, stood in the centre of Lower Parliament Street thence towards Coalpit Lane and the Market. As far as accepted theories are to be considered, the circuit was completed in the house Yard, the wall ending near the Coal Rock. During the recent works in connection with the Great Northern Company's participation in the Great Central Company's scheme some interesting remains of the wall were found.

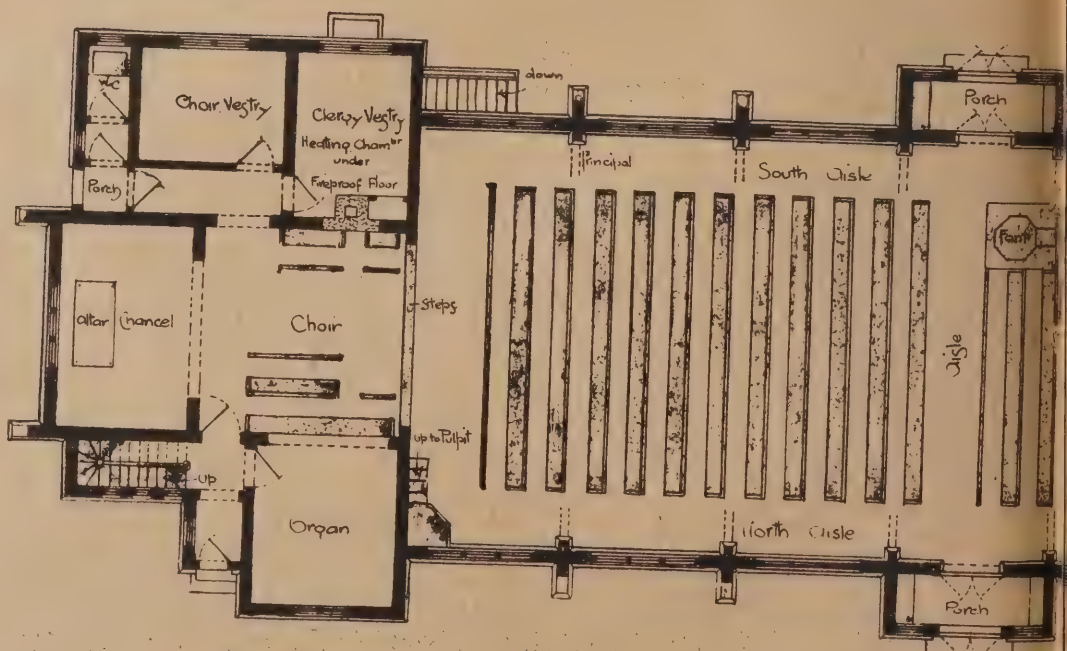
A NEW parish house has been erected in Clare Market in connection with the Church of St. Clement Danes, Strand. The building has been erected upon a piece of ground known as "the island," the gift of Mr. W. F. D. Smith, M.P., at a cost of about £4000, exclusive of the site, which is valued at about £3000. It contains a large hall, with seating accommodation for about 250 persons, and four other rooms.

In considering the half-yearly estimates, the Public Works Committee of the Cardiff Corporation discussed the merits of macadam stone paving, or wood paving. The Borough Engineer stated that if the streets were paved with wood there would be a very large saving not only in the repairing, but in the scavenging. — Councillor Crossman said that in his opinion the macadam system was not good enough to bear the heavy traffic in the town and supported the Borough Engineer's idea of paving with wood blocks or something else that would wear better.

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NORTH ELEVATION.

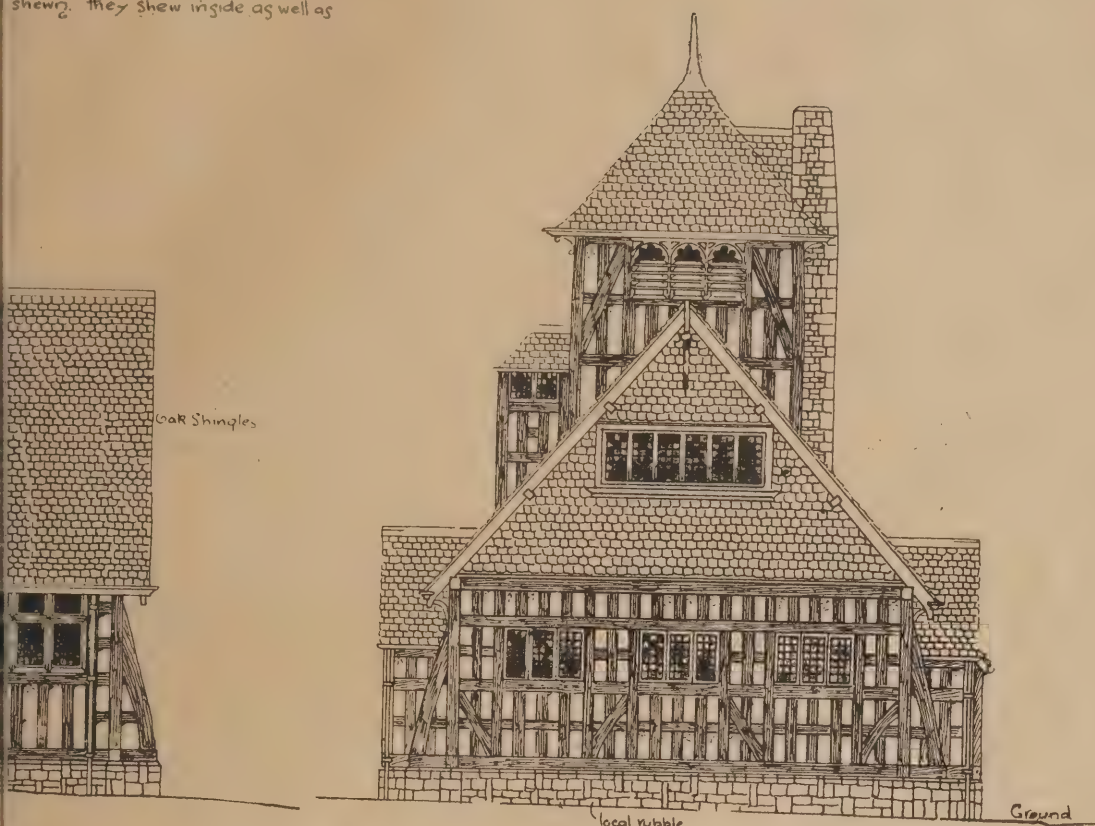


GROUND PLAN.

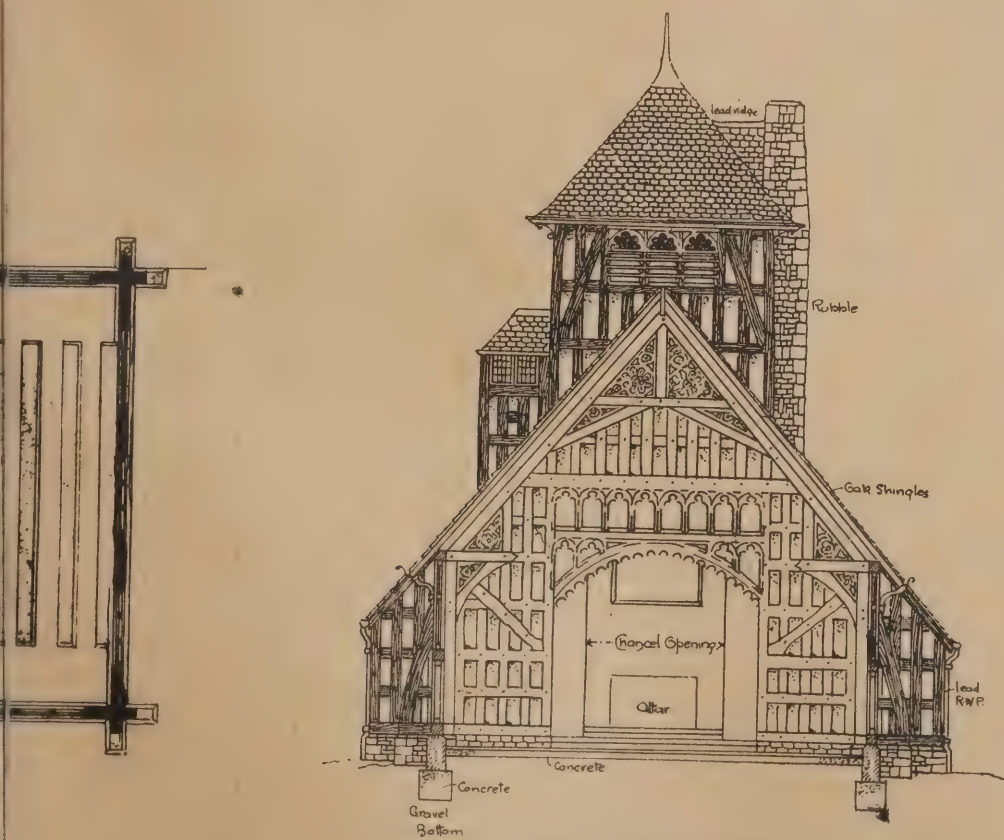
The materials used are - oak for all woodwork, local rubble for the stone plinth and for the Chimney from the heating Chamber, oak Shingles average Size 18x6" for the roofs, lead for all ridges & valleys, gutters and rainwater pipes; the windows are all filled in with lead lights with green tinted glass. Roughcast in panels outside, Raglar inside.

Small Wooden Church to seat 200.

are constructed with 9x9 oak studs
showing they show inside as well as



WEST ELEVATION.



SECTION LOOKING EASTWARDS.

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Surveying & Sanitary SUPPLEMENT.

MARCH 2ND, 1898.

MASONRY.

By JAMES WILDING

(Lecturer at the Liverpool School of Science, Technology, and Art).

No. I.

THE examples dealt with represent simple developments often required in the ordinary course of a mason's occupation. To make the principles embodied as clear as possible the minimum number of lines consistent with full explanation are used in each case.

FIG. 1.—THE CANT MOULD.—The square section of a mould is the one usually supplied by the architect to the workman—from this the developed section is obtained. The use of this mould is to prevent unnecessary labour on surfaces that are ultimately cut away.

The square section is marked inside an oblong figure. A C is the angle of the side for which the mould is required. Draw A M at right angles to A C; with A as centre describe the arc 1 M; divide the line 1 A into any number of parts—in this case, twelve—with A as centre. Describe the arcs dividing the line A M into the same number of parts; lines 1 2 3 4 5 6 7 8 9 10 11 and 12 are drawn parallel to A F B; from the points where touch the curve of the square section they are then drawn parallel to A 1 until they touch the line A C; from the points of contact on A E C draw them parallel to A M. Through the points of intersection the mould required for the "cant" is drawn.

This principle may be applied to any angle, care being taken to follow the method here described step by step.

FIG. 2.—DEVELOPMENT OF MOULD FOR LEVEL BED IN ARCH.—The square section is marked at the springing line. This is divided into a number of parts on the face, viz., 1 2 3 4 5 6 7 8, and on the soffit A B C D E F G, these being drawn parallel to the face line from the points of contact made by the lines 1 2 3 4 5 6 7 8 with line of the square section. Lines 1 2 3 4 5 6 7 8 are drawn parallel to the curve of the arch to touch the level line R S; transfer the numbers 1 2 3 4 5 6 7 8 to the

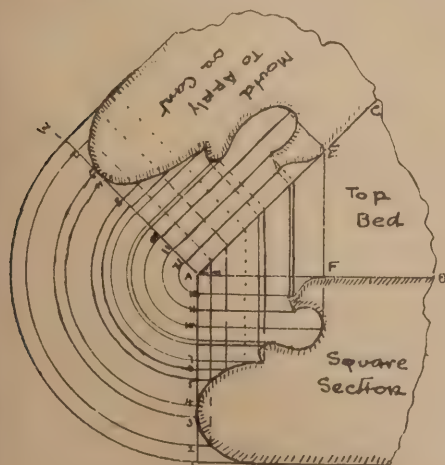


FIG. 1. THE "CANT" MOULD.

level line R S. As the width of the arch does not vary, the lettered divisions may be transferred by measurement. The mould traced through the lines that are square to R S and

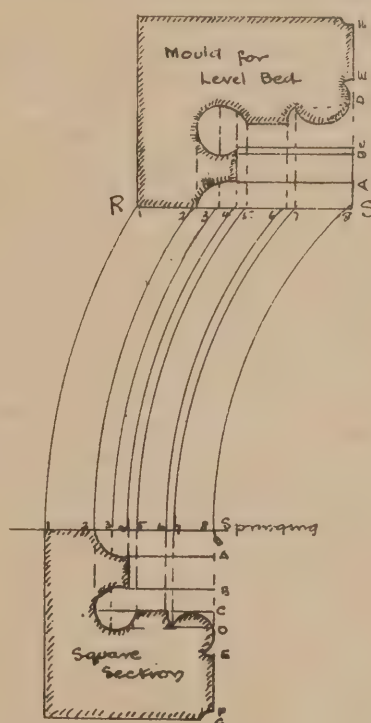


FIG. 2. DEVELOPMENT OF MOULD FOR LEVEL BED AND ARCH.

those parallel to it will be the required section.

This principle can be applied to any line representing any level bed—say, for instance, any level bed required in a groin springer. A very simple mould is here used—the most complicated can be almost as easily developed.

FIG. 3.—RAKING MOULD FOR PEDIMENT.—An ordinary cyma-recta or ogee mould is here developed from the level to the raking line. The object of this development is to obtain a mould that will work or "mitre" with the level section. It will be seen from examination of the figure that the projection is divided into five parts on the line squared from C E; these are dropped vertically to touch the curve of the square section. The centre C is used for convenience. With C as centre, turn over from left to right the numbers 5 to 1; from C L draw these lines square to the rake; from the points of contact, the lines 1 to 5, make with the square or level section; draw lines parallel to the rake; through the points of intersection draw the curve L 1 2 3 4 5 E. This is the developed section, and will mitre with A F.

FIG. 4.—RAKING MOULD FOR SEGMENTAL PEDIMENT.—This is very similar to the example described in the preceding case. Square A M from A K, and divide into parts illustrated in the figure; square A R from A G; with

centre A, turn over from left to right divisions 1 to 5; drop these vertically to touch the level section. From the centre G, draw these to touch A G; square them out from A G. Now drop the divisions on A R, and through the points of intersection the developed mould is traced.

FIG. 5.—MOULD FOR LEVEL BED IN A STEEP GABLE.—In some very steep gables it becomes necessary to use the level bed in order to allow the coping to rest rather than thrust the footable. This figure represents such a case. The square section is marked inside a square figure—the level line M C is drawn—square M N and C R from M C—with C as centre describe the arcs indicated in figure—it will be seen that the arcs indicate points that divide the mould into parts, and give points of contact in the square section through which lines parallel to the rake may be drawn from the points where these last touch the level line M C, they are squared down from the said level line—draw the lines indicated by the arcs parallel to M C, and trace the section through the intersection—this gives the required mould. In order to avoid the feather edge at M, the top member is sometimes left square from the rake—the lower members only being developed.

A LOCAL Government Board inquiry has been held at Nottingham into the application of the Corporation for a provisional order to empower them to put in force the powers of the Lands Clauses Acts with respect to the purchase and taking of lands required by them for the purpose of sewage disposal. Mr. Arthur Browne, M.Inst. C.E., city engineer of Nottingham, said 638 acres of land was not nearly sufficient for the present purpose, and it would be totally impossible to deal with the additional sewage unless they had additional land. The sewage farm would be a failure if they tried to do it. The area of land which he thought should be taken was that which appeared on the deposited plan, and that would be an additional 987 acres, and would make a total area of 1890 acres. About 500 acres of that it was impossible to deal with, leaving about 1300 acres available for their purpose. Of that they had sacrificed 113 acres in accordance with the wishes of the County Council. If they sacrificed that land there could not be any reasonable complaint by anybody.

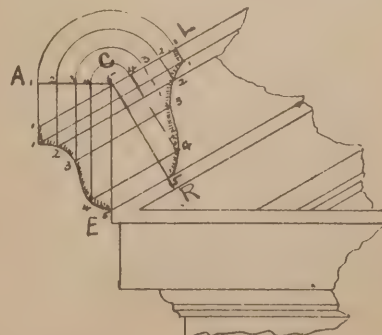


FIG. 3. THE RAKING MOULD FOR PEDIMENT.

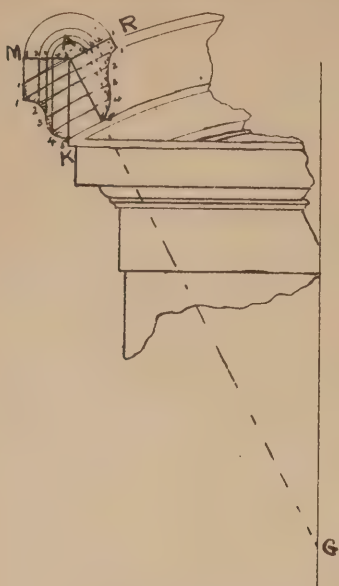


FIG. 4. THE RAKING MOULD FOR SEDIMENTAL PEDIMENT.

DILAPIDATIONS.*

By PROF. HENRY BUSHELL, F.S.I.

(Continued from Vol. VI., page xlvii.)

I BELIEVE I am right in stating that the London County Council take out about 1500 summonses in a year, the major portion of which are addressed to owners of property in respect of dangerous structures. But this somewhat wholesale summary method of procedure received a salutary check on the 2nd of last November by a decision of a Divisional Court, consisting of Justices Wright and Kennedy, The County Council, as well as their predecessors, the Metropolitan Board of Works, used to take no trouble or steps to ascertain who was the responsible party, but simply served on, or affixed to, the premises, a notice addressed to "The Owner," and then forthwith proceeded to get, almost as a matter of course, a magistrate's order against that more or less indefinite party, whomsoever he might happen to be. But recently the magistrate, Mr. Mead, declined to be so complaisant, and refused to make the order asked for by this powerful authority when the summons had merely been affixed to the premises. He held that this was not proper service, and that the Council ought to have exercised reasonable diligence to ascertain the actual owner, and have given evidence of such diligence before they were allowed to act in this summary manner. The County Council appealed against the magistrate's view (*Regina v. Mead*, Times Law Reports, Vol. xiv., p. 14), and, as before stated, had again to put up with defeat. It is to be hoped that in future they will seriously make inquiries beforehand in the direction indicated by the decision, and thus, perchance, diminish in some measure the harassing of lessees. This matter is of such grave importance that I trust you

* A paper entitled "The Practical Application of the Principles and Law of Dilapidations," read before the Auctioneers' Institute.

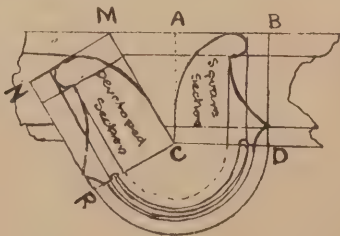


FIG. 5. DEVELOPED BED MOULD FOR LEVEL LINE IN STEEP GABLE.

will allow me to remind you of the case of *Lister v. Lane and Nesham*, quoted in my previous paper. The lessors claimed £700 for rebuilding a house which had been

CONDEMNED AS A DANGEROUS STRUCTURE, and pulled down by order of the district surveyor. The original construction was proved to be faulty, and the Court of Appeal held that the lessees were not liable under the covenant to substantially repair, uphold, maintain, &c. It is now generally accepted by the Courts that a vital principle in considering dilapidations is the condition and character of the premises at commencement of term. This evidently must exercise the judgment of the surveyor when determining whether or not such glaring defects as possibly are the advanced stage of inferior building are legally dilapidations. "Dry-rot" may be admitted to be closely allied to the foregoing. It is usually produced by faulty construction or want of ventilation. There is a difference of opinion among surveyors as to the liability to repair the consequences of "dry-rot." I incline to the view that the lessee must be liable, as under a repairing covenant he must repair from time to time. And although he may not permanently get rid of the trouble, yet, short of improving the construction (of a basement, for example), he must, unfortunately, accept the responsibility. We must not overlook the fact that dry-rot is sometimes brought about by a tenant's neglect.

POINTING TO BRICKWORK

affords another useful example for controversy. It must be admitted that pointing fulfils a necessary, as well as an ornamental purpose. I fail to see how any qualified surveyor could dispute the claim, as a dilapidation, if the mortar had so far worn or crumbled away as to admit the weather or wet into the walls. They must suffer in consequence, and the premises be, to some extent, the worse. In fact, I go further, and say, if "bare or open" joints are neglected long enough, the result will be a serious dilapidation. The kind of pointing claimable is quite another matter, and will be governed by the circumstances, but a weathered joint is a good form. Cement fronts and stucco work often offer a striking example of dilapidations. In recently surveying a town house in the West End, for the lessor, I found that the whole of the work of this description (some of it of elaborate design) was in a terribly dilapidated condition; in fact, the worst case of the kind in a house of its pretensions that I had ever seen. A heavy claim was the result. In certain cases of this nature I am not so sure that the mere reinstatement of the exterior would be sufficient to compensate for the inevitable injury to the fabric. As to

THE QUESTION OF RENT CLAIMS,

I am of opinion that, under certain circumstances, a claim in respect of rent as compensation during the execution of repairs is reasonable. The case just cited afforded an example of where a claim for a quarter's rent (£75) was made and recovered, but it is only right to say that the dilapidations recovered amounted to nearly £700, and as the lessee did nothing in the matter, and vacated on the last day of the term, there was, of necessity, time lost during the execution of repairs. Sanitary matters, including drainage, continue to call for careful discernment on the part of the surveyor. It is not altogether easy to state the present position of the law thereon concerning liabilities to repair, &c., but it appears almost settled law that a lessee under a full repairing covenant would have to be wholly responsible for drainage and sanitary matters not chargeable to the local authority of the *locus in quo*. It would, however, be advisable for a lessee to ascertain before taking an unfurnished house on lease if the drainage was not approved, or was such as is likely to be condemned. Incidental to these matters the important question arises as to the

DISTINCTION BETWEEN A DRAIN AND A SEWER.

The case of *Travis (appellant) and Utley (respondent)*, decided in 1893, is a case in point. A drain running under the basements

of three adjoining houses and carrying the refuse matter of all three houses into a public sewer, was held to be a sewer within Section 4 of the Public Health Act, 1875, and vests in the local sanitary authority. The appeal was heard before Justices Wills and Wright, and this interpretation was confirmed. But it is easy to conceive cases where the surrounding circumstances will render the distinction and interpretation by no means easy of application. Where Part III. of the Public Health Act, 1890, has been adopted by a sanitary authority, a drain passing through private ground, but receiving the drainage of more than one house, is a drain within the meaning of Section 19 of this Act, and is not a sewer within the meaning of the Public Health Act, 1875. This case was that of *Self v. Hove Commissioners*, and was an appeal from the County Court of Sussex, heard in 1895 before Justices Wills and Wright. It was held that this case was distinguishable from *Travis v. Utley*, and on appeal the decision of the County Court judge was reversed. The Local Board issued notices on plaintiff

TO RECTIFY A NUISANCE,

whereupon the plaintiff employed a contractor to do the work, and sued the defendants for the costs, and recovered in the County Court. On appeal it was held that the real liability was on the plaintiff, and not on the defendant. The more recent case of a similar nature to the last is that of *Eastbourne (Mayor) v. Bradford*, heard on appeal before the Lord Chief Justice and Mr. Justice Wills, in 1896. The appeal decided that a local sanitary authority who had adopted Part III. of the Public Health Acts Amendment Act, 1890, may, upon the true construction of Section 19, treat a drain connecting two or more houses, the property of different owners, with a public sewer, as

A SINGLE PRIVATE DRAIN

and repairable by such owners individually. It was an appeal by the defendant against judgment for the plaintiffs, a local sanitary authority, in an action brought in a County Court to recover in a summary manner, under Section 41 of the Public Health Act, 1875, as amended by Section 19 of the Public Health Acts Amendment Act, 1890, a proportion of expenses incurred in relaying a drain which connected the defendant's house, as well as the houses of the owners, with a public sewer. The appeal was dismissed, and the decision referred to above was upheld. Innumerable cases could be quoted bearing directly upon the subject under consideration. I have, however, in the foregoing, endeavoured to submit some of the more important cases decided in recent years. These may, I think, be safely regarded as acknowledged precedents, and as they decide some of the most "vexed and litigious points in dilapidations," a knowledge of the cases is invaluable to the surveyor.

It is estimated that £9000 will be required to make good the damage to the South Pier at the mouth of the Tyne. Mr. Walker, the Commissioner's engineer, has been instructed to go on with the work of replacing the disturbed foreshore blocks and adding a toe to protect these blocks. The sum of £9000 estimated to be required for this work has already been provided for in the estimates in three sums of £3000 each; and Mr. Matthews, of the firm of Messrs. Coode, Son, and Matthews, is making an examination of the condition of the South Pier. As to the North Pier, the walls on both sides of the parapet to the west of the breach have long shown signs of weakness—caused through the employment of lias lime, used in cementing the masonry blocks, this material having proved unsuitable through its inability to resist the action of the salt water and the weather—and now Mr. Matthews recommends the Commissioners to take immediate measures to save these parapet walls from falling away outwards by strengthening the pier at the parapet with tie rods passing from the outside of each parapet wall through the middle of the structure. This is found to be necessary for a length of 600ft.; and three tie rods will be inserted in every 50ft. of this section.

Surveying and Sanitary Notes.

THE Barry District Council has decided to ask the Local Government Board to sanction the borrowing of £9450 for new works in connection with the water supply of the town, instead of £7950, as originally intended. The water engineer (Mr. E. W. Waite) reports that it is intended to construct a new reservoir at high level with a capacity for 280,000 gallons.

THE foundation-stone has been laid of the Sheffield pumping station works, in connection with the Walsall Wood sewerage scheme. The cost of the engineering works is about £11,700. The sewage farm is at Clayhanger, a distance of two miles away, and is already in use for the Brownhills district. Mr. H. B. Nichol, of Birmingham, is the engineer for the scheme, and the contractor is Mr. H. Holloway, of Wolverhampton.

THE offer of Messrs. D. Cunningham and Son, Kilmacolm, to carry through the Parkhill Reservoir improvement scheme, has been accepted by the Glasgow Town Council. The additional tank to be constructed will contain about 500,000 gallons of water ready for use, and the filterage accommodation, which has been found to be inadequate for some time, will be considerably increased, the committee having decided to add two new filters in connection with the reservoir. The contract price is about £4000.

THE Royal Agricultural Society, a few weeks back, approached the Local Government Board on the subject of the regulations imposed by certain local authorities, fixing a minimum cubic air-space for cow-sheds. One point was made clear, viz., that the central authority had not imposed any uniform regulations, although it had in certain cases approved regulations submitted to it. But it also

appeared that the Local Government Board contemplate drawing up regulations, in which a minimum air-space will be fixed.

COLONEL A. J. HEPPER has held an inquiry on behalf of the Local Government Board into the application by the Batley Corporation for sanction to borrow £13,494 for works of surface water drainage. The Town Clerk (Mr. J. H. Craik) appeared in support of the application, and said that at present the surface and storm water went into the ordinary sewers, and in times of heavy rainfall these were insufficient. Serious complaints had been made of cellars being flooded, and when the surface water drains were laid the cause for complaint would be removed.

THE Local Government Board has issued, as a supplement to the Department's twenty-fourth annual report, a summary of the general sanitary survey of urban districts in England and Wales during the years 1893-95, when cholera on the Continent of Europe was an ever-recurring source of danger to this country. The survey took account of a large number of rural as well as of urban districts; but, owing to the delay caused by a serious accident which befel Dr. F. W. Webster, to whom the supervision of the survey was entrusted, and to the subsequent death of Dr. Barry as the result of his accident, the summary relates almost exclusively to the work done by the Department's medical inspectors in urban sanitary districts. Sir Richard T. Thorne, medical officer of the Department, states in an introductory note that the volume indicates the directions in which English sanitary administration proceeds when danger of imported infection arises; and it serves to emphasise the point that our main trust in the control of exotic disease lies, not in futile attempts to keep away from our shores all chance of infection, but in urging those who are responsible for the health of our communities, whether urban or rural, to maintain, by continuous and systematic work, such a standard of cleanliness as regards air, soil, and water, that their districts shall not afford

to any chance infection that may reach them the opportunities for multiplication and diffusion. In an unfinished introduction, the late Dr. Barry mentioned that reports were made during the survey regarding 396 districts, and added: "As to the value of the sanitary survey, there can, I think, be no two opinions, and it is only to be regretted that owing to the exigencies of the public service it could not be continued for a longer period."

SATISFACTORY progress has been made with the Burntisland new dock works, which were commenced about nine months ago. The new dock is to have a water area of fully ten acres, and a maximum depth at spring tides of 29ft. In order to obtain this extra depth the new works are being constructed to the south and east of the existing dock, and that necessitates the reclamation from the sea of an area of about thirty acres. During the past months the reclamation wall, which runs in a westerly direction from the eastern boundary at the Lammerlaws promontory, has been run out to the extent of 680 yards. The whole of the material used in the construction of this embankment has been obtained from a field of hard whinstone rock adjoining the shore, and about 80,000 cubic feet of this rock have been obtained by blasting operations. About 200 yards of the reclaiming wall have still to be constructed, and when that has been done an additional length of 500ft. will be built of concrete in order to protect and strengthen the new dock head. At the west side of the harbour an extension, and what is known as Cromwell Pier, has almost been completed, the distance run out being 500ft. The round head at the point of that pier has yet to be constructed, and between the piling work a solid concrete wall is to be erected, five blocks of which have already been built. This wall is 26ft. broad at the base, and 12ft. at the top, and is to be surmounted by a 6ft. screen wall to protect the new entrance from the force of westerly gales and seas. The width of the new dock entrance between the pier heads will be about 250ft.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
March 5.	Ashby-de-la-Zouch—Fittings to Laboratory, &c...	Grammar School Governors	G. H. Lilley, Ashby-de-la-Zouch.
" 5	Christchurch, Hants.—Erection of Shed, &c...	Guardians	A. Druitt, Clerk, Christchurch.
" 5	Mullingar, Ireland—Erection of Chronic Block, &c...	Board of Control of Lunatic Asylum	H. Williams, Office of the Board, Customs House, Dublin.
" 5	Oxford—Erection of Infirmary Block	Committee of Management	W. H. Castle, Surveyor, Town Hall, Oxford.
" 5	Colton, Yorks.—Erection of Mission Church		C. H. Fowler, Architect, The College, Durham.
" 5	Pembroke Dock, South Wales—Nurses' Home		H. A. Jones-Lloyd, 33, Bush-street, Pembroke Dock.
" 5	Wollaston—Erection of Six Cottages	W. Tibbetts	E. W. Margetts, Rockholm, The Heath, Stourbridge.
" 7	London, E.—Construction of Dining Hall, &c...	Whitechapel Union Guardians	B. J. Capell, 70, Whitechapel-road, E.
" 7	Standish, near Wigan—Dwarf Wall, &c...	Langtree District Council	Heaton, Ralph, and Heaton, Surveyors, King-st., Wigan.
" 7	Handsworth—Fixing, &c., of Hurdle Fencing, &c...	Urban District Council	E. Kenworthy, Surveyor, Council House, Handsworth.
" 8	Lewisham—Fire Engine Station	London County Council	Architect's Department, 13, Spring-gardens, S.W.
" 8	Manchester—Pulling Down Old Houses, &c...	Corporation	Secretary, Waterworks Offices, Town Hall, Manchester.
" 8	Mortlake—Erection of Hospital Block, &c...	Barnes Urban District Council	G. C. Tones, Council Offices, High-street, Mortlake, S.W.
" 8	Pershore, Worcs.—Railway Station	Great Western Railway Co.	Engineer, G. W. R. Station, Gloucester.
" 8	Barking Town—Designs and Tenders, &c., for Bandstand	Urban District Council	C. J. Dawson, East-street, Barking.
" 9	Appleton Wiske, Yorks.—Erection of Stone Bridge	Northallerton Rural District Council	Highway Surveyor, Northallerton.
" 10	Sheffield—Erection of Parcels Offices, &c...	Great Central Railway Co.	Engineer, London-road Station, Manchester.
" 10	Stabannon, Ireland—Completing Church Tower, &c...	Very Rev. P. Pantony, P.P.	W. H. Byrne, 20, Suffolk-street, Dublin.
" 12	Norwich—Technical Institute	Corporation	A. E. Collins, Guildhall, Norwich.
" 14	Llangarthen, Wales—Stone Bridge over River Towy	Carmarthen County Council	T. Jones, Clerk, County Council Offices, Llandovery.
" 14	Dartford—Additional Buildings, &c...	Union Guardians	G. H. Tait, Architect, Lowfield-street, Dartford.
" 14	Hford, Essex—Superstructure to Asylum, &c...	County Borough of West Ham	I. Angell, Town Hall, Stratford, E.
" 14	Hastings—Retaining Walls, Fencing, &c...	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
" 15	Bewcastle, Cumberland—Erection of 3 Stone Bridges	Longton Rural District Council	J. Murray, District Surveyor, Alstonby, Carlisle.
" 15	Ipswich—Enlargement of School	School Board	T. W. Cotman, Architect, Northgate-street, Ipswich.
" 15	Battersea, S.W.—Superstructure of Fire Station	London County Council	Architect's Department, 13, Spring-gardens, S.W.
" 15	London, N.—Construction of Board Room and Offices...	Edmonton Union Guardians	T. E. Knightley, 106, Cannon-street, E.C.
" 17	London, E.—Erection of Schools	Guardians of Mile End Old Town	C. F. Burden, Architect, Guardians' Offices, Bancroft-rd. E.
" 17	Whipton, near Exeter—Reformatory Buildings	St. Pancras Vestry	E. H. Harbottle, Architect, County-chambers, Exeter.
" 17	London, N.W.—Brick Chimney Shaft	Standing Joint Committee	Chief Clerk, Electricity Department, 57, Pratt-street, N.W.
" 19	Hereford—Cleaning-down Shire Hall, &c...	Guardians	County Surveyor, Shire Hall, Hereford.
" 21	Sheffield—Erection of Infirmary Ward	Guardians	J. D. Webster, 19, St. James's-street, Sheffield.
" 21	Brighton—Block of Buildings	Union Guardians	H. S. Reed, Architect, Prince's-street, Brighton.
April 2	Windsor—New Infirmary Buildings		Edginton and Summerbell, Architects, Windsor.
No date.	Ashton-under-Lyne—Erection of Six Houses		A. E. Davies, Oldham-road, Ashton.
"	Exmouth—Alterations, &c., to Premises	W. H. Penwarden	Kerley and Ellis, Architects, Exmouth.
"	Exmouth—Erection of Business Premises	Hubber and Son	Kerley and Ellis, Architects, Exmouth.
"	Insch, Scotland—Erection of School		G. Sutherland, 115, Union-street, Aberdeen.
"	Low Baildon, Yorks.—Five Terrace Houses		F. Moore, 40, Sunbridge-road, Bradford.
"	Otley, Yorks.—Erection of Thirty-One Houses		Fairbank and Wall, 3, Manor-square, Otley.
"	Ramsgate—Erection of Premises	Gwyn and Company	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
"	Bangor, North Wales—Schools	Sir J. Barran, Bart.	Douglas and Minshall, 6, Abbey-square, Chester.
"	Leeds—Enlargement of Hotel		W. C. Hall, Architect, Prudential-bldgs., Park-row, Leeds.
"	Gwynfi, near Llangadock, Carmarthen—		E. H. Bruton, 15, Queen-street, Cardiff.
"	Clones, Ireland—Convent Buildings		Canon O'Neill, P.P., Clones.
"	Morpeth—Church and Schools		G. Reavell, jun., Architect, Alnwick.
"	Skewen, near Neath—Retaining Walls, &c...	Glamorgan County Council	W. E. R. Allen, County Offices, Westgate-street, Cardiff.
"	Llanelli—Erection of Houses		J. Davies and Sons, Architects, Cowell House, Llanelli.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
ENGINEERING—			
March 5	Northwich—Construction, &c., of Electric Lighting Plant	Weaver Navigation Trustees	J. A. Sauer, Engineer, Weaver Navigation, Northwich.
" 5	Pembroke, Ireland.—Electric Lighting Plant	Lighting Committee	R. Hammond, Ormond House, Great Trinity-lane, E.C.
" 5	East Ashford—Driving Bore Hole	Union	H. Knock, New-street, Ashford.
" 7	Cashel—Erection of Gasholder, &c.	Town Commissioners	J. O'Leary, Town Clerk, Town Hall, Cashel.
" 8	London, S.E.—Supply of 4 Sanding Machines	Lambeth Vestry	J. P. Norrington, Vestry Hall, Kennington Green, S.E.
" 8	London, E.C.—Electric Cables, &c.	Shoreditch Vestry	H. M. Robinson, Clerk, Town Hall, Old-street, E.C.
" 8	Coventry—Electric Lighting Plant	Electric Lighting Committee	R. Hammond, Ormond House, Great Trinity-lane, E.C.
" 8	West Derby, Liverpool—Electric Lighting Plant	Board of Guardians	H. P. Cleaver, Brougham-terr., West Derby-rd., Liverpool.
" 8	West Ham—Electric Light Wiring, &c.	Town Council	J. J. Steinitz, Pumping Station, Canning Town, E.
" 8	Exeter—Gasholder Tank	Gas Company	W. A. Padfield, Engineer, Gasworks, Exeter.
" 8	Glasgow—Condensers at Gasworks	Corporation	Engineer, 45, John-street, Glasgow.
" 9	Belfast—Electric Wiring Police Cells	Union Guardians	V. A. H. M'Cowan, Electrical Engineer, Marquis-st., Belfast.
" 9	West Ham—Supply of Iron Staircases, &c.	Victoria Bridge Executive Committee	F. E. Hilleary, Guardians' Offices, Union-rd., Leytonstone.
" 10	Hereford—Iron and Steel Bridge Work	Newport Rural District Council	J. Parker, Engineer, Mansion House, Hereford.
" 10	Church Aston, Salop—Water Supply Works	County Council	R. N. Heane, Clerk, Newport, Salop.
" 12	Dorstone, Hereford—Carriage Bridge		H. T. Wakelam, County Surveyor, Shire Hall, Hereford.
" 12	Copenhagen, Denmark, Dynamos, Accumulators, &c.		Frederiksberg Sporvejs-og Electricitets-Aktieselskab, Gam- mel Kongerej No. 140, in Copenhagen V.
" 12	Leicester—Six Tar Stills	Gas and Electric Lighting Committee	A. Colson, M.I.C.E., Millstone-lane, Leicester.
" 14	Pembroke—Water Supply Works and Materials	Town Council	F. Beesley and Son, 11, Victoria-street, Westminster.
" 15	Morpeth—Water Supply Works at Asylum	Committee of Visitors	D. Balfour & Son 3, St. Nicholas'-bldgs., Newcastle-on-Tyne.
" 16	Watford—Supply of Generating Plant, Electric Lamps, &c.	Urban District Council	W. C. C. Hawtayne, 20, Bucklersbury, E.C.
" 17	Egremont, Cheshire—Electric Lighting Plant	Wallasey Urban District Council	J. H. Crowther, Engineer, Great Float, near Birkenhead.
" 17	Sophia, Bulgaria—Electric Lighting Town		The Mayor, Sophia, Bulgaria.
" 24	Buncrana to Carrondagh, Ireland—Execution of Railway		Secretary, Board of Works, Dublin.
April 27	London, S.W.—Electric Search Light Apparatus	Secretary of State for War	A. Major, Director of Army Contracts, War Office, Pall Mall.
July 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
No date.	Warsaw—Supply of Electrical Power		President of the Town of Warsaw.
"	Cardiff—Heating, &c., Church		Habershon and Fawcner, Architects, Pearl-street, Cardiff.
"	Wakefield—Steam Mains, &c.	Committee of West Riding Asylum	J. V. Edwards, County Surveyor, Wakefield.
"	Harrogate—Electric Lighting Inn	T. Fawcett	T. Fawcett, The Coach and Horses, Harrogate.
"	Bellingham, Northumberland—Water Supply		A. Smith, High Green, Bellingham.
IRON AND STEEL—			
March 5	Christiania—Supply of Tramway Rails, &c.	Municipal Tramways	Foreign Office, London.
" 8	London, S.W.—Railway Carriages	Secretary of State for India	Director-General of Stores, India Office, Whitehall, S.W.
" 8	Hull—Supply of Cast-iron Holding Down Plates	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 8	London, W.—Steel Girders, &c.	Great Western Railway	Engineer, Paddington Railway Station, London.
" 9	London, E.C.—Supply of Steel Underframes, &c.	East Indian Railway Co.	A. F. Dunstan, Company's Offices, Nicholas-lane, E.C.
" 9	London, E.C.—Supply of Spring Steel, &c.	Central India Railway Co.	T. W. Wood, 45, Finsbury-circus, London, E.C.
" 10	Bolton—Cast-iron Pipes	Gas Committee	W. Walch, Office Superintendent, Gas Offices, Bolton.
" 15	London, E.C.—Steel Axles, &c.	Southern Mahratta Railway Co.	E. Z. Thornton, 44, Finsbury-circus, E.C.
PAINTING AND PLUMBING—			
March 5	London, S.E.—Painting Works and Public Library	Bermondsey Vestry	F. Sumner, Surveyor, Town Hall, Spa-road, S.E.
" 12	Buxton—Decorating, &c., Chapel	Visiting Committee	S. Selby, High-street, Buxton.
" 19	Stafford—Repainting County Asylum		W. H. Cheadle, County Surveyor, Stafford.
ROADS—			
March 5	Bermondsey, S.E.—Supply of Ballast and Sand, &c.	Vestry	F. Ryall, Vestry Clerk, Bermondsey Town Hall, Spa-rd., S.E.
" 5	Clown, Derbyshire—Supply of Broken Slag	Rural District Council	H. J. Gower, Surveyor, Post-office, Whitwell, Chesterfield.
" 5	Cottenham—Relaying Pavement	Parish Council	Emona A. Harod, Clerk, Cottenham.
" 7	Barnes—Supply of Materials, &c. (Six Contracts)	Urban District Council	G. B. Tomas, Council Offices, High-street, Mortlake, S.W.
" 7	London, N.W.—Supply of Horses, &c.	St. Pancras Vestry	C. H. F. Barrett, Vestry Hall, Pancras-road, N.W.
" 7	Thorne, Yorks.—Supply of Granite, &c.	Rural District Council	G. Kenyon, Clerk, Plantation-road, Thorne.
" 7	Salford—Supply of Grit, Setts, Flags, &c.	Corporation	Borough Engineer, Town Hall, Salford.
" 8	London, E.C.—Paving, Granite, Cartage, &c.	Shoreditch Vestry	H. M. Robinson, Clerk, Shoreditch Town Hall, Old-st., E.C.
" 8	Wrexham—Supply of Roadstone, &c.	Urban Authority	Borough Surveyor, Wrexham.
" 8	Maidstone—Road Works	Kent County Council	F. W. Ruck, 86, Week-street, Maidstone.
" 8	Croydon—Supply of Horses, &c.	Council	Borough Engineer, Town Hall, Croydon.
" 8	Croydon—Supply of Carts, &c.		Borough Road Surveyor, Town Hall, Croydon.
" 8	Bath—Supply of Granite, &c.	Urban Sanitary Authority	C. E. Fortune, City Surveyor, Guildhall, Bath.
" 8	Workshop—Supply of Broken Slag	Rural District Council	F. Hopkinson, Poplar House, Watson-road, Workshop.
" 8	London, S.E.—Roadmaking and Paving Work	Lewisham Board of Works	Surveyor, Lewisham Town Hall, Catford, S.E.
" 9	Belper—Road Materials	Rural District Council	R. C. Cordon, Surveyor, Hazelwood, Derby.
" 9	Swindon—Hauling Materials	Rural District Council	O. Kimber, 64, Exmouth-street, New Swindon.
" 10	Pontefract—Supply of Materials	Rural District Council	W. A. Glover, Clerk, Union Offices, Pontefract.
" 12	Kiveton Park, near Workshop—Supply of Slag	Rural District Council	W. Atkinson, Surveyor, Top Hall, Thorpe Selvin, Worksop.
" 14	St. Thomas, nr Exeter—Supply & Haulage of Materials, &c.	Rural District Council	A. E. Ward, 9, Bedford-circus, Exeter.
" 14	Rotherhithe, S.E.—Articles, Works, &c.	Vestry	J. J. Stokes, Town Hall, Lower-road, S.E.
" 14	London, N.—Supply of Road Materials, &c.	Hornsey Urban District Council	E. J. Lovegrove, Engineer, Southwood-lane, Highgate, N.
" 16	London, S.W.—Cartage of Granite and Gravel	Middlesex County Council	F. H. Pownall, County Surveyor, Guildhall, Westminster.
" 16	London, S.W.—Supply of Broken Granite	Middlesex County Council	F. H. Pownall, County Surveyor, Guildhall, Westminster.
" 16	Bingham, Notts.—Team Labour	Rural District Council	R. H. Beaumont, Clerk, Market-street, Bingham.
" 16	St. Helens, Lancs.—Supply of Granite Setts, &c.	Corporation	G. J. C. Broom, Borough Engineer, Town Hall, St. Helens.
" 19	Talgarth, Brecon—Construction of New Road	Asylum Visiting Committee	Giles, Gough, & Trollope, 28, Craven-st., Charing Cross, W.C.
" 25	Newark—Supply of Granite and Slag	Rural District Council	T. Vickers, District Surveyor, Lincoln-street, Newark.
" 26	Slenford, Lincs.—Supply of Broken Granite	Urban District Council	E. Clements, Clerk, Council Offices, Sleaford.
No date.	Far Cotton, Northampton—Supply of Granite	Urban District Council	J. Ingram, Surveyor, Abington-street, Northampton.
"	Kingsthorpe, Northampton—Supply of Granite	Urban District Council	J. Ingram, Surveyor, Abington-street, Northampton.
"	Handsworth—Making-up of Roads	Urban District Council	W. Roberts, 37, Waterloo-street, Birmingham.
"	St. James', Northampton—Supply of Granite	Urban District Council	J. Ingram, Surveyor, Abington-street, Northampton.
"	Sheffield—Construction of Roads	F. U. Laycock	Fowler and Marshall, 3, Hartshead, Sheffield.
SANITARY—			
March 5	Manchester—Supply of Lime for Sewage Works	Rivers Committee	City Surveyor, Town Hall, Manchester.
" 5	Manchester—Supply of Proto-sulphate of Iron	Rivers Committee	City Surveyor, Town Hall, Manchester.
" 5	Darton, near Barnsley—Emptying, &c., of Privies, &c.	Urban District Council	J. Gibson, Clerk, 5, Regent-street, Barnsley.
" 7	Burslem—Removal of Nightsoil, &c.	Wolstanton Rural District Council	J. A. Lowndes, Clerk, Public Offices, Burslem.
" 7	Llanelli—Sewerage Works	Urban District Council	G. Watkeys, Town Surveyor, Town Hall, Llanelli.
" 7	Dewsbury—Supply of Disinfectants	Corporation	G. T. Lee, Town Clerk, Town Hall, Dewsbury.
" 7	Handsworth—Removal of House Refuse	Urban District Council	E. Kenworthy, Surveyor, Council House, Handsworth.
" 8	Bath—Supply of Sewer Pipes, &c.	Sanitary Committee	C. R. Fortune, City Surveyor, Guildhall, Bath.
" 8	Strathaven, Scotland—Laying Sewers, &c.	District Committee	Crouch and Hogg, 175, Hope-street, Glasgow.
" 9	Chase Town, Lichfield, Staffs.—Sewerage Works, &c.	Rural District Council	E. W. Ives, 20, Albert-street, Derby.
" 12	Broadstairs—Construction of Sewers	Urban District Council	H. Law and Son, 17, Victoria-street, Westminster, S.W.
" 14	Hastings—Drain, Manshafts, &c.	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
" 15	Motherwell, Scotland—Removal of Manure, &c.	Commissioners	Burgh Engineer, Town Hall, Motherwell.
" 17	Burnley—Construction of Sewers, &c.	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
No date.	Utttoxeter, Staffs.—Supply of Manures, &c.	Staffs. Dairy Farmers' Association	W. E. Smith, Secretary, Utttoxeter.
TIMBER—			
March 8	London, W.—Supply of Sleepers, &c.	Great Western Railway Co.	Stores Superintendent, Railway Station, Swindon.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
March 31	Winchester—Designs, &c., for Public Baths	£25, £15	Town Council.
May 1	Belper—Sewage Disposal Schemes	£2 10s., £26 5s.	Urban District Council.
" 31	Singapore—Designs for Town Hall	£200, £100	Major F. L. Anderson, R.E., South Camp, Aldershot.
July 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Borough Council.
No date.	Lewisham, S.E.—Designs for Clock Tower		Local Committee.

EGYPT, THE BIRTHPLACE OF ARCHITECTURE.*

BY G. A. T. MIDDLETON, A.R.I.B.A.

EGYPT is, as far as has been ascertained, the fountain-head of all civilised Architecture, and being a country of peculiar climate, the remains of even the most ancient works have been handed down to us in a remarkable state of preservation, so that we are able to trace their history back in a manner which would have been otherwise impossible. Besides this, again, the monuments have been covered with inscriptions, both by those who erected them and by their successors, and modern research having enabled these inscriptions to be read, the history of the country and of the buildings alike has been revealed.

So far as it has been possible to ascertain the facts, it appears that the generality of the people have been at all times agriculturists, subject to despotic and often foreign rulers, who have made them their slaves. Thus, whenever the throne has been occupied by those who have been inclined to build, there has been ample slave labour available, both for the actual erection of the buildings and for the transport of materials, to bring limestone from the hills bounding the Nile valley, or granite from Syene.

The dates given by various authorities both to buildings and rulers are very confusing, but, according to Mariette, there were thirty different Dynasties of heathen Kings, or Pharaohs, between the years 5004 B.C. and 378 B.C., divided into three great periods, thus:—

1st Period	Thinite and Memphite.	1st to 10th Dynasties.
2nd Period	Theban (Ancient)	12th to 17th Dynasties.
	2466 B.C. to 1702 B.C.	
3rd Period	Theban (New).	18th to 21st Dynasties.
	1702 B.C. to 966 B.C.	
	Saite (Old)	22nd to 26th Dynasties.
	966 B.C. to 527 B.C.	
	Saite (New)	27th to 30th Dynasties.
	527 B.C. to 378 B.C.	

Then, after a short gap, came the period of Grecian rule, under the Ptolemies, commencing 322 B.C., the first Ptolemy having been a general under Alexander the Great; and this

* A paper read before the Society of Architects on Thursday, February 24th, 1898.



COURTYARD DENDERAH.

is followed by Roman occupation in the year 30 B.C., Egypt subsequently, for a long time, forming part of the Byzantine Empire, as it has remained feudatory to Constantinople even to the present day.

The building epochs also arrange themselves into four great groups, marked, as might be expected, by great divergences of style, which may be arranged as follows:—

- I. Pyramidal or Memphite, during the 4th Dynasty.
- II. Proto-Doric or Early Theban, during the 12th Dynasty.
- III. Theban or Late Theban, during the 18th and 19th Dynasties.
- IV. Ptolemaic, during the times of the Ptolemies and the Romans.

Between these periods the throne seems to have been occupied by kings who devoted themselves to other Arts than that of Architecture, or the country appears to have been in a state of disorder, as during the rule of the

Hyksos, of which little is known, between the 12th and the 18th Dynasties.

The earliest buildings existing are all of the nature of tombs. It seems that the Egyptians, with some vague idea of the Resurrection such as has been possessed by many heathen races, had a belief that the body would come to life a second time some three thousand years after death, if properly preserved. Hence the mummies, and the solid tombs. These latter first took the form of square-based Pyramids—evident successors to simple tumuli or heaps of stones; and the earliest of these of which remains exist is the Great Step Pyramid at Sakkarah. Accepting the earlier dates in all cases with caution, its erection is generally ascribed to Ata, King of Egypt, about 4300 B.C. Besides this, all that is known of it is that it consists of six huge steps of limestone masonry, arranged one upon another until a rough pyramidal form is attained, the steps being respectively 38ft., 36ft., 34ft., 32ft., 31ft., and 29ft. high.

If there were any intermediate stages between this and the perfect Pyramid, they have been lost, but of these latter there are many examples the principal group being at Gizeh, near Cairo, and the principal one of the group being the famous Great Pyramid of Cheops (or Khufis), which is supposed to have been erected about B.C. 3733. Each side of its base measured about 760ft., and its vertical height 450ft.; but its actual dimensions are difficult to determine, as the original granite casing has all been removed, and only the limestone core remains. The granite casing is said to have been so perfectly worked that not even a thin piece of paper could be passed into the joints; and this is still the case with the granite lining to the passages with which it is traversed, and which penetrate even into the rock upon which it is built. How the blocks could have been worked so perfectly, and how raised into position when worked, still remain unsolved problems to the present day.

The fact of the tomb chamber having been found unoccupied when explored has caused the promulgation of many theories as to the reason for the existence of the Pyramid at all, one of an exceedingly fanciful nature being that it was a prophetic building erected by Melchisedech, and another, put forward by a well-known astronomer, being that its passages, and the grooves along their sides, were intended to perform the office of huge telescopes for the observation of certain stars at certain times.

If the remains of the Pyramidal epoch be few, even though colossal in size, those of the



PYLONS, EDFOU.

succeeding period, the Proto-Doric, are fewer still, and small withal; but they make up for this by foreshadowment of greater things to come elsewhere in later ages. Some half-dozen dwellings were excavated during the 12th Dynasty, and about the year 2300 B.C., in the limestone escarpment bordering the Nile Valley at Beni Hassan, these being subsequently used as tombs upon the death of their inhabitants. The arrangement was that of a single chamber with the roof supported by columns, not built up, but simply left out of the solid rock when the chamber was excavated. In the principal case there is also a smaller chamber within, evidently used as the tomb; and in that, as in most instances, a verandah was formed in front of the entrance by carrying the overhanging rock there also by columns. The arrangement is precisely that which might be expected in a small flat roofed timber house in a hot country, from which the inspiration is most evidently taken; as is seen at once by examination of the front of the verandah, for the columns have small abaci, representing bearing-pieces of wood, between their tops and the lintel which they carry. This lintel is in the form of a horizontal architrave or beam of wood, and above it are representations of the ends of longitudinal rafters such as would carry the flat roof; while large flat circular discs are employed as bases, again, like the abaci, to act as bearing-pieces, this time to distribute the weight of the columns over the surrounding surface. In reality, however, the parts are not pieced together as the above description might lead one to suppose, but the whole is left of solid rock, without joint.

A great deal has been made both of this plan and of this elevational arrangement, as being the prototype of not only its immediate successors, the Egyptian Temples of later Dynasties, but of the Grecian Doric order. The plan of a prostyle temple consisting of a simple cell, with side walls extended in front, and columns placed there so as to form a verandah or entrance, is here clearly enough; but whether the temple plan was derived direct from these tombs, or from the type of building from which these tombs were also derived, and which must have been in common use for several hundreds of years, is questionable. So, too, it is with the general features of the elevation—and, perhaps, it is more interesting to believe that these tombs merely represent in stone a type of building, common for a long period of time, proving it to have been of exceedingly ancient origin, than to imagine that the inspiration of the Grecian temples was taken direct from them without any connection across the many centuries between their dates. The most curious feature, however, is the occurrence of flutes, or hollow sinkings, in the verandah-supporting columns of the principal tomb. There are sixteen sides to each column, and each side is slightly hollowed, as if to emphasize the arris, or edge; and similar flutings appear, at a much later date, in the columns of the Greek Doric order, there being no known examples at intermediate periods to carry on the sequence. As to the origin of these, there have been many theories, but probably the columns were first left square (as they still are to some of the tombs), then octagonal by the removal of the edges, then sixteen sided; and then looking awkward, the sides were sunk for emphasis, as said above.

In another of the Beni-Hassan tombs there are two transverse rows of three columns each, the column forming quatrefoils on plan being composed of four reeds of large size, or possibly representations of four circular wooden posts of small section, bound round near the top by representations of grass binding, the interstices being filled with short filets. Above this binding the reeds swell out forming a bud-shaped capital, and above the capital is a shallow abacus. The columns taper considerably, and the form is one which came into very general use later on. As usual, the theorists have been busy as to its origin but it is perhaps best to record only that which is obvious.

Between the 12th and the 18th Dynasties there is an unbridged gap in the history of Egypt, all that is known being that it was

overrun by the Hyksos, or Shepherd kings. It was evidently a time of disorder, and no buildings of the period remain.

With the 18th Dynasty, however, there opened the greatest building epoch which Egypt ever saw, the Theban Period; as, also, this time was that of Egypt's greatest prosperity. Then it was that the Israelites were captives in Egypt, Rameses II., the third king of the 19th Dynasty, being generally believed to have been the Pharaoh who withstood Moses.

The great buildings of this period are all close together at Thebes, further up the Nile than Beni Hassan, and now take the form of huge temples arranged upon a well-thought plan, one story only in height, but majestic and awe-inspiring in appearance. Externally they were simple, forbidding structures, with plain walls inclined inwards and crowned with the invariable simple cavetto cornice, and with entrance at one end only, between huge masses of masonry, called pylons, in the form of truncated pyramids, again with the cavetto cornice crowning them. Internally the arrangement was always symmetrical round an axial passage-way, so managed that when standing at the main entrance a view was obtained through the entire length of the temple to the shrine of the deity at the extreme end. This would be as impressive a view as could well be imagined, through sunlit courtyards and dark pillared halls alternately, with brilliant, nay gaudy, colouring used lavishly upon the walls and columns.

A glance at the plan will show that the

great temple (or palace—probably both) at Luxor, a fairly typical example, was erected in three stages. The earlier portion dates to, at least, 1500 B.C.—the time of Amenophis III., a king of the 18th Dynasty. It consists of the shrine, with a great number of small chambers round it, then, in advance, a deep pillared hall, opening along its entire width into a great courtyard, with double colonnade on either side, the whole being closed by a pair of massive pylons with the entrance gate between. Later on another hall, comparatively narrow, with two rows of columns down its length, appears to have been added, another pair of pylons with entrance between being erected. So far, the usual axial arrangement was preserved, but in making the subsequent addition of another open courtyard, with a double colonnade all round, and with yet fresh pylons at the new entrance, the axis has been lost, and the plan of the courtyard is not rectangular.

Of a slightly later date is the temple at Karnac, it being generally ascribed to the time of Seti I. and his son Rameses II., circa B.C. 1400 to 1333. Its general arrangement is very similar to that of the temple at Luxor, save that a small temple has been inset into the side wall of the outer courtyard by Rameses III., as late as 1200 B.C.; and an outer pair of pylons was added again much later, in the Ptolemaic period. From the outer courtyard is entered a great pillared hall, famous as the Hypostyle Hall of Karnac.

(To be continued.)



HYPOSTYLE HALL, KARNAC. VIEW DOWN AXIAL PASSAGE.

Professional Items.

ABERDEEN.—The Aberdeen Young Men's Christian Association has under consideration a large scheme for the alteration and improvement of their buildings. Plans and the scheme now proposed show that with regard to the present front house of the Association's buildings, the front is to be taken down, and two storeys—inclusive of a mansard roof—added, making it altogether, including the basement, five storeys high. The main entrance will be placed in the middle of the elevation, instead of the side as at present, and will be surmounted by a tasteful pediment, with architrave. Ornamental belts sweep across the front of the building, and at the ridge of the roof the moulded cornice is surmounted by an effective granite balustrade. The internal arrangements of the front house will be a distinct improvement on the present conditions. It is proposed to take down the present side gallery, knock out the two corners at the south-east and north-east, in order to make the hall rectangular; further, to place the platform at the Union Street end of the hall, instead of at the side as at present; and, finally, to run a gallery round the three other sides, giving accommodation for 1000 persons, instead of 750, as at present.

BARRY.—The new Wesleyan Chapel, just opened at Barry, has been built at a cost of about £3400 by Messrs. E. R. Evans Bros., of Cardiff, from plans prepared by Mr. Budgeon, of the firm of Jones, Richards and Budgeon, architects, Cardiff. The elevations are of Newbridge stone with Bath stone dressings, the style of Architecture adopted being Early Perpendicular. The ornamentation, however, is almost limited to the treatment of the central part of the front elevation. This is uncommon, and the flowing tracery archway to the central door is effective. The width of the chapel at the transepts is greater than the length of the building from lobby to choir. It is anticipated that this arrangement will bring the minister in close touch with the congregation. Sitting accommodation is provided for 624 upon the ground floor, and when the galleries are erected (provision for them in the future having been made), the accommodation will be increased to about 1100. The choir seats are behind the rostrum, and will accommodate forty-six, with space for organ in addition. There are two vestries for the choir and minister, both rooms having access to a large parlour. There are no gallery supports and columns from the same to help carry the roof, which is in one span, light Bath stone pilasters carrying the ends of roof trusses. A novel feature in this chapel is that Jarrahdale Jarrah wood has been introduced as wood-block flooring in the aisles and elsewhere, the warm red contrasting well with the adjoining oak blocks.

BRIGHTON.—Extensive alterations to the structures on the Sussex County Cricket Ground, Brighton, are to be made. They consist of the building of a new grand stand on the site of the old wooden structure at the south end of the ground, construction of a professionals' dressing room, etc. The elevation of the new pavilion for the professionals will be of brick and of neat design. Owing to the room taken up by the raised seats which border the playing field, it will not be possible to have a terrace after the style of the members' pavilion, and therefore entrance will be gained by a double staircase in front of the building. This will lead to a balcony, and to the double doors, through which admission will be gained to the principal of the suite of rooms—a spacious sitting room, which will be common to the Sussex and visiting professionals. This room will be fitted with four large windows, which will take up practically the whole width of it, so that a perfect view of the play will be afforded. On either side of the sitting room will be a large dressing room. Each will be fitted with two windows and every requisite, and at the back of the suite of rooms will be lavatories. On

the ground floor will be the telegraph office and store room accommodation. The new pavilion will be over 50ft. long.

CARDIFF.—A beautiful three-light stained-glass window, from the studio of Mr. N. H. J. Westlake, has been unveiled in the Church of St. John the Baptist, Cardiff. The window is intended as the first of a series of four in the south aisle of the church, illustrative of the life and history of the patron saint.

DUNDEE.—Considerable progress has been made within the past few months in the erection of the large new structures in Dundee. The Royal Bank in High Street is now well under way; the mason work of the ground floor is practically completed, and the archway of the principal entrance is being set, while in the rear the underground safes are nearing completion. The new offices of the Pearl Assurance Company in Meadowside are well advanced, the walls having been brought up to the level of the fifth and last storey. The mason work is expected to be finished in the course of a month. This promises to be an elegant structure, and its fine proportions and details are generally admired. The offices of the Scottish Provident Institution, situated on the other side of the street, have not progressed so rapidly as was desired, owing to delay in the forwarding of the Rubislaw granite that forms a feature of the ground frontage. This difficulty, however, has now been overcome, and the work is going on steadily. The new post office may be said to be in the finishing stages, the plasterers, painters, and glaziers being busily engaged upon their respective branches of the work.

EDINBURGH.—The foundation-stone has been laid of the St. Mary's Cathedral (Dalry) Mission Buildings, situated at Caledonian Crescent, Edinburgh. The site has a frontage of about 48ft. The chapel, which is 50ft. long and 25ft. wide, is on the first floor, with one end to the street. Under it is a hall of similar dimensions for Sunday school purposes. These two form a gabled block at the eastern side of the site. Slightly recessed on the western side is the porch, and rising over it an octagonal tower containing the staircase, and surmounted by a wooden belfry. On the ground floor there is at the back a large class-room (24ft. by 22ft.) for the infants' Sunday school. A caretaker's house is provided on the first floor over the class-room. The general feeling of the design is a free treatment of fourteenth century Architecture, with a blend, notably in the belfry, of seventeenth century work. The chapel gable is treated in two stories. The whole buildings, which are well lighted and ventilated, will be warmed by hot water and illuminated by electricity. The chief contractors for the works are Messrs. W. and J. Kirkwood, and the architect is Mr. Henry F. Kerr. The total cost of the undertaking will be about £2800.

GLASGOW.—The students of the High School Building Construction Classes recently paid a visit to the East End sewage works, Dalmarnock. Over forty students were present, and were shown over the works by Mr. Bain. The works form one of the largest and most successful projects of the city, being wrought on a very economical and efficient basis. The total area of ground covered is about 19 acres, out of 28 available, and they deal with one-fifth of the entire sewage of the city.

GLOUCESTER.—The following recommendations were presented at a recent meeting of the Gloucester School Board: (1) That this Board proceed to provide new schools for the eastern districts of the city, upon a site about two acres in extent, now owned by the Corporation in Sandpits Road; (2) that the said new schools should accommodate, when completed, 720 boys and girls, and 400 infants in all; but that the arrangement should be such that, in the first place, only the portion of the buildings ultimately designed for the mixed school of 720 children shall be erected for the accommodation of a mixed school of 500 boys and girls

and 275 infants. (3) That provision shall be made upon the site for a cookery school, and for the residence of a caretaker. (4) That plans be invited from a limited number of architects, in competition, including the following:—The architects having business offices in the city of Gloucester; Messrs. Goodey and Cressall, Colchester, and the architects of approved board schools at Grimsby, Leicester, and Bristol. (5) That premiums be offered of £100, of £50, and of £25 respectively, to be awarded according to the merit of the plans received; the premium merging in commission in the event of the winner being selected to carry out the work." After much discussion, resolution No. 1 was carried; 2, 3, and 5 were referred to the committee; and with respect to 4, an amendment that plans be invited from architects having business offices in Gloucester only was carried.

LEEDS.—The granite balustrade in City Square, which forms a circle about 100ft. in diameter around the space where the equestrian statue of Edward the Black Prince is to stand, is almost completed. Around the balustrade eight small figures, representing alternately night and morning, are to be placed. Each figure will hold a 500 candle-power electric lamp. These figures are expected to be ready before the close of the present year, but 1899 will be well advanced before the central statue is ready for unveiling. The plans for laying-out the square were prepared by Mr. Bakewell, architect.

The Standard Life Assurance Company is about to erect new buildings on the site of the old post office in Leeds. The company recently purchased the site from the Corporation for £49,950, and acquired the property at the rear with a frontage to Wine Street for £11,000. The preparation of the plans of the new buildings has been intrusted to Mr. Archibald Neill, 18, Cookridge Street, Leeds, and the work will be carried out under his supervision. The design is Classic in character. The façade will be of stone, Bolton Wood in the basement and the remainder Portland. Internally the accommodation will comprise between forty and fifty suites of offices. All of these, with the exception of about four suites, will be lighted from the front, and the aspect being towards the south, their situation will be still more desirable. The main entrance to the building will be from City Square; the offices facing Park Row will have separate entrances. The basement will have an entrance at the lower side of the site. All the corridors will be broad and well lighted, and the various stories will be reached by an elevator as well as by staircases. Every apartment in the building will have its fireplace. Mr. Isaac Gould is executing the contract for the digging of the foundations. The estimated cost of the structure is about £30,000.

LIVERPOOL.—The laying of the corner stone of the new building being erected by the Royal Insurance Company has taken place. When the directors of the company decided upon raising a new building, competitive designs were invited, and the architect chosen was Mr. J. Francis Doyle, of Liverpool, whose plan was put first by the assessor, Mr. Norman Shaw, R.A. The style is Classic, adapted to modern requirements. The substructure is composed of grey Aberdeen granite to a height of 30ft. above the pavement level. The superstructure will be composed of white Portland stone, and roofed with green slates. To the Dale Street front will be a gable rising 110ft. above the pavement. In North John Street will be placed the main entrance (in situation identical to the present entrance), which will be surmounted by a tower 150ft. high, and which forms one of the principal features of the design. At the south end will be the entrance for tenants, which also is embellished by a tower, but of less importance than that of the main entrance. A noticeable feature in the building is the steel construction, mainly introduced to obviate the necessity of columns on the ground floor, which for the entire length will be utilised as the general offices of the Company. The main weight-carrying girders

are placed upon the third floor, resting at the ends upon steel stanchions built into the walls, and from which are slung the two floors immediately beneath. Internally it is intended very largely to utilise marble faience or panelling for the walls in lieu of the ordinary plaster, this material being reserved for ceilings only. The building, rectangular in shape, will be about 220ft. long by 52ft. wide, and on the ground floor the general office will be of the dimensions of 194ft. long, 48ft. wide, and 21ft. high. The new building will extend from Dale Street to the return side street, a distance of 212ft., but the present operation only consists of two-thirds. This length when finished will be occupied by the Royal, pending the pulling down and continuing the structure up to Dale Street.

MAESTEG.—A new church has been built at Maesteg. It is arranged upon a somewhat unusual plan. The nave is 67ft. wide, and is designed so that practically every member of the congregation may see the Communion table. On either side of the nave is a fine arcade, with clerestory over. The ground floor of the tower provides ample organ space, with choir vestry, and there is a large clergy vestry in the tower basement, with separate entrance communication by means of a staircase with the choir vestry above. The font is placed at the west end of the church, where a baptistery for total immersion is also provided. The pulpit is composed of green Bridgend stone, neatly carved, with red Irish marble shafts and bands of polished pink alabaster. The style adopted is the English first pointed. The tower is not completed, but is designed to attain a height of considerably over 100ft. The masonry is of an exceptional character, faced externally with ashlar, laid in regular courses, cement pointed. The dressings externally and internally are of Bridgend stone. The open timber roof is of pitch pine, left plain, and is covered with green slates. The west wall, so often a source of trouble, has been rendered impervious to wet by the introduction of a vertical asphalted damp course. The contractor was Mr. McGaul, of Bridgend, who carried out the work under the direction of the architect, Mr. G. E. Halliday, the diocesan surveyor for Llandaff.

OSSET.—The corner stone of a new church at Gawthorpe, Osset, was recently laid. Designed in the Perpendicular Gothic style of Architecture, the church will comprise a nave 61ft. 6in. by 22ft., with north and south aisles, each 61ft. 6in. by 10ft. 4in. The aisles are divided from the nave by arcades of four arches each. The arches are double-chamfered, and rest upon octagonal pillars with moulded caps. The chancel measures 29ft. 9in. by 22ft. 6in., and on the north side of it is an organ chamber 15ft. by 12ft.; on the south side vestries for the clergy (15ft. by 10ft.), and choir (15ft. by 11ft. 6in.). The building is being carried out from designs by Mr. Swindon Barber, late of Halifax, and by Mr. T. H. Farrar, architect, Halifax.

STOCKPORT.—At a special meeting of the Town Council the Mayor proposed a resolution in favour of the erection of a town hall, the cost not to exceed £60,000, but, after discussion, a proposition was passed favourable to the erection of a town hall without committing the Council to the amount to be expended. The question of a site was referred to the Town Hall Committee. It was also decided to erect a new fire station on a portion of the Mersey Mill site, Heaton Lane, from plans and drawings prepared by Mr. John Atkinson, borough surveyor.

WORTLEY.—The Greenside Wesleyan Sunday School, Wortley, is about to be rebuilt. Mr. C. F. Wilkinson, architect, of Park Square, Wortley, has prepared the plans. Constructed of stone, with a Gothic roof, a portion of the new premises will be two stories high. On the ground floor there will be an assembly room 53ft. long by 28ft. wide, and three commodious class-rooms. A fourth class-room will be provided on the upper floor. The new building is estimated to cost £600 or £700.

Under Discussion.

THE WINTER SESSION.

HYDRAULIC MACHINERY.

A meeting of the Royal Scottish Society of Arts was held recently in the Society's hall, George Street, Edinburgh, Mr. A. Beatson Bell, the president, in the chair. Mr. Peter Whyte, C.E., made a communication on the various hydraulic machinery at Leith Docks, of which he is the superintendent. After mentioning the fact that such machinery had first been used in Scotland at these docks, he proceeded to give a description of the various methods of working the dock gates by means of hydraulic power which are employed at Leith. Going on to speak of hydraulics in their application to the working of swing bridges, he stated that the Victoria Bridge at Leith, which had a clear span of 120ft., was, at the time of its erection in 1874, the largest bridge of its kind ever made. In this connection, he indicated the method to be employed for working the new bridge over the Water of Leith at Bernard Street.

"MODERN DETAILING."

At the monthly meeting of the Glasgow Architectural Association—the president, Mr. W. Tait Conner, in the chair—a paper by Mr. Henry D. Walton, on "Modern Detailing," was read in his absence. Detailing he viewed as something more than the mere enlarging of small-scale drawings. There are new conditions to be observed, and a treatment is necessary that differs from that applicable to the composition of façade. Guidance in the matter is much required, and here the architectural curriculum is lacking in definiteness. Mouldings in particular were specialised in the paper; one of their first essentials is that scale should be preserved throughout an edifice, a truth pretty generally acknowledged, though not always easy of expression. Diagrams were exhibited of the mouldings of the Strozzi Palace that have this quality of scale, and a comparison made with the too common modern usage of main cornice, subsidiary and string, all repetitions in varying size. Another diagram analysed the profiles, &c.

ITALIAN ART.

Mr. Paton, curator of Glasgow Corporation Galleries, has delivered the eighth of his weekly addresses on Italian Art, dealing with the Venetian painters, Giorgione's and Palma, the elder. After referring to Giorgione's boyhood and early training under Bellini, Mr. Paton remarked that Giorgione introduced easel pictures into Venice. Art, which had hitherto been patronised solely by ecclesiastics and rulers, now acquired commercial patrons, who employed artists to decorate their houses with frescoes and to paint subjects suited for the household from classical writers, Virgil, Ovid, &c., as well as from Holy Scripture. Referring to Giorgione's portraits, the lecturer said they were distinguished for their great simplicity and intensity of character. Giorgione was the first to treat of colour in relation to light and shade, and was the first real landscape painter. He was lofty in character, a lover of all beautiful things, extremely popular, handsome, tall, dignified, and he exerted a wonderful influence even as a youth. Of the vast number of works attributed to him, less than a dozen are generally admitted to be genuine. Mr. Paton then gave a brief account of Palma and his characteristics as an artist.

BENEFITS OF BUILDING EXCHANGES.

The first annual dinner of the members of the Glasgow Building Trades Exchange took place in the Windsor Hotel. The chair was occupied by Colonel Robt. J. Bennett.—Mr. Peter Laurence, president of the Edinburgh Building Trades Exchange, in proposing the toast of "The Glasgow Building Exchange," stated that Glasgow was the first to start such an institution in Scotland, but the movement had spread to Edinburgh and other parts of

the country. He spoke of the benefits of such exchanges, and mentioned as one of them that Scotchmen in any branch of the trade who went abroad and found ideas in evidence which they thought might be of benefit to those at home made use of the exchanges to communicate those ideas, so that Scotland was always kept in the forefront of the business.—The Chairman, in acknowledging the toast, said that in these degenerate days, when prices were cut to the lowest and corporations and co-operative societies were loud in the land, it was proper that such associations as theirs should be built up and play a useful part in guaranteeing good work, and insisting on a fair price to enable them to execute it.

"THE VERNACULAR OF THE WREN SCHOOL."

At a recent meeting of the Edinburgh Architectural Association—the President (Mr. Thomas Ross) in the chair—Mr. James A. Williamson, past president of the Architectural Society, read a paper on "The Vernacular of the Wren School," which was illustrated by a collection of limelight views. The lecturer gave an historical resumé of the Renaissance in Great Britain from the earliest period of its influence, in the reign of Henry VIII., till the beginning of the seventeenth century, when the architectural authority of Inigo Jones became paramount. Mr. Williamson stated that Inigo Jones was the first Englishman to grasp in its full significance the art of the Italian Renaissance. The works of Inigo Jones were minutely described, particularly the palace at Whitehall for James I. This work, the lecturer considered, showed that Jones possessed a complete mastery of proportion, a keen sense of the balance of voids and solids, and full knowledge of the value of chiaroscuro. He was one of the most brilliant architectural designers this country has ever produced. Sir Christopher Wren, as the acknowledged head of the school, was next dealt with in an exhaustive manner, and his several outstanding achievements in design described in detail, notably St. Paul's, Hampton Court Palace, St. Mary-le-Bow, and Walbrook. Mr. Williamson claimed that Wren founded a strictly vernacular school of Architecture based on the principles of Italian Renaissance, and that, never having visited Italy, he approached the study of his great works with a mind free from the trammels of precedent, in which, perhaps, the instinct of the engineer rather than the artist predominated. The lecturer concluded by referring to the eclectic and cosmopolitan character of the Architecture of the present day, arguing in favour of a return to the best examples of the Wren school, with a view to a logical development of the spirit then in force towards perfection on traditional and vernacular lines.

GLASGOW CATHEDRAL.

In the eighth of his Art lectures, delivered in the Glasgow Corporation Art Galleries, Mr. T. L. Watson took for his subject "Glasgow Cathedral." He referred to the influence upon the development of Gothic Architecture exercised by the numerous and destructive fires which occurred in the large churches of the eleventh and twelfth centuries. In order to make their religious buildings enduring as well as beautiful, the whole energy of the designers was directed to the problems of covering them with stone vaulting, and this resulted in the evolution not only of the arch rib vault, but of the pointed style of Architecture. The earliest building of importance at Glasgow, the church erected by Achaius in the early years of the twelfth century, was destroyed by fire in 1176, and a parallel to this was found in Canterbury, where the choir of the Cathedral, erected at the same time as the church of Achaius, was burnt down in 1174. While we knew nothing about the destruction of the building at Glasgow beyond the date, a minute and picturesque description of the fire at Canterbury by an eye-witness, together with a valuable account of the operations which followed, had come down to us. From this Mr. Watson read several extracts. The rapidity

with which the rebuilding of the choir at Canterbury had been carried out was contrasted with the prolonged operations under Bishops Jocelyn, Walter, and Bondington at Glasgow. The choir and lower church, it was stated, were almost wholly of the thirteenth century, a period when there was no appreciable difference between the Architecture of Scotland and that of England. We had thus the broad basis of English archæology to ground upon, and in contrast with other parts of the building and with many other buildings in Scotland, its Architecture was particularly clear. The Architecture was of five distinct dates, each separated from the others by an interval sufficient to mark the development of the style. This development was indicated by a change of general design and by the introduction of a new type of moulding in the vaulting ribs in each section, which formed a regular sequence and illustrated the development of vaulting during the thirteenth century.

MATERIAL AND DESIGN IN POTTERY.

Mr. William Burton, lecturing at the Manchester Municipal School of Art, on "Material and Design in Pottery," said that the application and use of glaze must not be regarded solely from the decorative point of view. The most important reason for the use of glaze was a strictly utilitarian one—that it served to render ordinary pottery impervious to liquid. There was an important group of pottery which from the nature of its clay material was not so dependent on a coating of glaze, and which might indeed be sufficiently impermeable without the addition of a glaze coating at all. The name "stoneware," so generally applied to this class, was an excellent one, for most of the older specimens had practically the colour and the same evenness of grain as a good freestone. The simplest members of this important group were only to be distinguished from earthenwares and terra-cotta by their greater density and their diminished porosity. Owing to their partial vitrification they emitted a much clearer and more ringing sound when sharply struck. But at the other end of the group were found examples so white and translucent, as well as so vitrified, that they were hardly to be distinguished, even by an expert, from true porcelain. The group of "stonewares" formed a natural connecting link between earthenware and porcelain; and a knowledge of it formed the best possible preparation for a study of the highest form of pottery—the porcelains. Mr. Burton passed on to a technical account of the production of the earliest stoneware pieces. In early days stonewares, though often so vitrified as to need no glaze to enable them to retain fluids, were very frequently smeared, before firing, with a coating of ferruginous clay, which, melted at a high temperature, produced a dark-coloured sort of glaze of a perfectly natural kind. This variety of glazed stoneware was largely made in most European countries for use among the peasantry even at the present time. Its place had never been quite supplied by the finer and whiter modern earthenwares. The German and Flemish potters of the sixteenth century elevated stoneware into a distinct and artistically important pottery group by the invention of salt-glaze, which had made the stoneware group complete in itself, and quite distinct from either earthenware or porcelain, to neither of which could a salt-glaze be applied. The lecturer described the method by which the strongly heated ware was entirely enveloped in common-salt vapours, forming salt-glazed stoneware, which was one of the simplest, but most technically perfect, forms of pottery known. The glaze was brilliant and most perfectly adherent to the body. It was so thin, too, that the finest and sharpest work of the modeller retained its crispness and vigour.

MESSRS. JOHN MARSHALL AND SONS, builders, Hawick, have received instructions to erect the monument which the Edinburgh Border Counties Association has resolved to put up at Ettrick Hall to mark the birthplace of James Hogg, the Ettrick shepherd. The architect is Mr. Heiton, Perth.

Correspondence.

NOTTINGHAM COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—With reference to your excellent account of the above, might I mention that there is no such firm as Messrs. Robson and Newberry, and that the design was sent in by Philip A. Robson and John C. Newberry, Assoc.R.I.B.A.—I am, dear Sir, yours faithfully,
PHILIP A. ROBSON.

Enquiry Department.

NOTICE.

Readers manifest a desire from time to time to assist those who avail themselves of the Enquiry Department instituted in this Journal, and many supplementary replies answering points raised in the Enquiry Department have been received from all quarters. The Editors, therefore, have decided, in order that Enquirers may benefit also by these kind offices, to publish the supplementary answers, in addition to the answers supplied by the technical experts associated with the staff of the Enquiry Department. The more widespread the information, the more effectually will the purposes of the Enquiry Department be served, and the Editors invite replies from any to whom the questions appeal, as they appear. Such answers must be to hand not later than Saturday morning for the forthcoming Wednesday's issue.

WORKING DEEP LEVELS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should feel extremely obliged if any of your readers could explain the method of working out or reducing levels, when the datum comes out above the site levelled. I have made a sketch of my level book, which I think asks for itself what I want.

B.S.	I.	T.S.	Rise.	Fall.	R.Levels	
2.93	8.56			5.63	2.00	Bt. For.
	6.75		1.81			
	10.01			3.26		
		10.99		0.98		

Yours faithfully, "LEVELLOR."

EXTERNAL WALLS IN DOMESTIC BUILDINGS.

ARCHITECT (Guildford).—There can, in our opinion, be no doubt in this case that the District Council is quite right in its contention—that, in fact, it would have been neglecting a clear duty had it not insisted on the wall being made 13½ in. thick, in compliance with sub-section (k), evidently specially devised to meet precisely such a case as this.

PROFESSIONAL CUSTOM.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Wishing to have a house built, I interviewed an architect and surveyor (a personal friend) who agreed to undertake the matter for a considerably reduced fee (i.e., much less than the usual five per cent.) His account is strictly in accordance with the arrangement, but I find he has received nearly £20 from me, through the builder, for getting out the quantities, he having instructed the builder to add this sum to his estimate. Under the circumstances is this a fair and proper action on his part?—Yours faithfully, M. A. T.

Though the architect would have done more wisely, and have been more open, had he first

told his client that he was going to prepare quantities and charge for them through the builder, he only did what is customary in the provinces. In London it is usual to employ an independent quantity surveyor, but it comes to the same thing so far as the client is concerned; the architect appoints the surveyor, the quantities are paid for by the builder, and the money comes out of the owner's pocket, being added to the builder's estimate. By the way, is it the act of a "friend" to expect a professional man to work for him at a reduced fee?

WHOSE MODEL?

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Is plaintiff justified in retaining the joint model after defendant has lost the action and paid all costs? Should not the model become the property of the party who pays the costs?—Yours, etc.,

"PROTRACTOR."

Our Solicitor replies as follows:—"If the plaintiff's costs include the sum paid by him as his half of the expense of the joint model, then, when the costs have been paid by the defendant, the model becomes, I think, the sole property of the latter."

ANCIENT LIGHTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you kindly inform me how many years undisputed right it takes to qualify for an easement as regards ancient lights, and, failing such qualification, how should such lights be blocked up?—Yours faithfully,

"AN OLD SUBSCRIBER."

Twenty years. Any effectual obstruction to the access of light, e.g., a wall built up close to the window, or a hoarding erected there. Care must be taken in doing the work necessary to block up the window, not to commit any trespass, e.g., by building or resting anything upon any part of the wall in which the window is.

ADOPTED PLANS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I instruct an architect to prepare plans, &c., for a house, which is duly built and inhabited by myself. A year or so later, I desire to build a nearly, but not quite, similar structure, on an adjoining plot, without further architectural assistance. Am I justified in adapting the plans of my first house for the purpose?—Yours faithfully, T.

In a strict legal sense, you are justified in doing as you propose, but the architect in question would certainly feel aggrieved, and it would be better to come to an arrangement with him. Under such circumstances, architects will generally charge only for making copies of the plans already prepared for the first house, and of its specification—with, in this case, a little extra for proposed alterations—and for supervision of the work. It is well to bear in mind that competent supervision may well, by securing sound construction and good materials, save many times the amount paid for it.

PLANNING OF SKITTLE ALLEYS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I shall feel extremely obliged if you could give me some particulars as to the planning of skittle or bowling alleys, such as would be adjoined to an hotel or club—a few leading points to be observed in the construction of the same, such as the proportion of length to width and height, whether top or side lights would be best; also the best materials for the construction of the alley.—Faithfully yours, "GAME."

At a meeting of the Bradford City Council a long discussion took place on an amendment to pay £100 extra to Mr. Barker, architect, for his services in connection with the erection of the new electricity works, which had cost £11,000 instead of £7000, as originally estimated. The resolution was that Mr. Barker should be held to a contract for £250, but the amendment was carried by 35 votes to 14.

Trade and Craft.

MESSRS. GIBBS AND CANNING.

Messrs. Gibbs and Canning, Limited, whose buff clay in terra-cotta work is held in great repute, inform us that they are now fully represented in London. Their representative will always be pleased to call in reference to any architectural terra-cotta work in view. The address of the firm is New Inn Yard, Tottenham Court Road, W.

LIBERTY AND PROPERTY DEFENCE LEAGUE.

The report of the Liberty and Property Defence League for 1897 states that the number of individual members continues to increase, and gives the number of societies representing the various interests in the country which are federated with the League as 207. The chief interest in the report centres in the League's Parliamentary work. The successive steps comprised in the process of Bill "blocking" are catalogued, and particulars given of the part taken by the Parliamentary Committee of the League in securing the defeat of various Bills affecting land and house property, railways, mines, trades and manufactures, shipping, and the liquor trade. For instance, as regards the London County Building Bill, the League published a pamphlet, which was sent to every member of the House of Commons, with the result that a strong feeling of opposition to the measure was aroused. In the House of Lords the League chairman (Lord Wemyss), with a view to calling attention to what the League regarded as the absurd and mischievous character of Lord Londonderry's Working Men's Dwellings Bill, introduced a "logical" Bill to provide facilities for the acquisition by occupiers and occupying ratepayers of their dwellings, and this action the League claims had something to do with the fate of the other measure, which, although read a third time in the House of Lords, did not reach the second stage in the Commons. Strong endeavours were made to obtain the rejection of the Workmen's (Compensation for Accidents) Bill. It will be remembered that to achieve this object Lord Wemyss unsuccessfully divided the House on the third reading.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

CAMBRIDGE.—For the construction of roads, bridges &c., for St. John's College. Messrs. J. Carter Jonas and Sons, surveyors. Quantities by the surveyors:—
W. Bell and Sons £5,337 15 8 Siddons & Freeman £3,737 0 0
W. Saint... 4,994 0 0 Sindall... 5,649 0 0
Thos. Adams... 4,485 0 0 Chas. Kidman...
Swann Bros... 4,126 13 0 Sturton-street,
G. Bell... 3,945 10 0 Cambridge* 3,602 8 0
Coulson and Lofth 3,840 0 0 *Accepted.

EWELL (Surrey).—For the erection of a house on the London-road, for Mr. J. Stradwick. Messrs. Burdwood and Burdwood, architects, 4, Berkeley-road, Crouch End, London, N.:—
Kendall, Ewell... £294 Powell, Worcester Park* £335
Killick, Ewell... 355 *Accepted.

GRAVESEND.—For the erection of (1) market buildings, and (2) fire-engine station, mortuary, &c., for the Town Council. Mr. Edmund J. Bennett, architect, 24, Darnley-road, Gravesend. Quantities by Mr. W. Hawker:—

	Market.	Fire-engine station.
Thomas and Edge	£2,708	£3,914
Rayfield	2,564	2,995
Gorse	2,554	1,015
Martin	2,554	968
Tuffer	2,552	925
Multon & Wallis, Gravesend*	2,499	899

*Accepted.
HENDON.—For the construction of 1,240 yards of 12in. sewer, including manholes, lampholes, flushing chambers, etc., at the Hyde, for the Urban District Council of Hendon. Mr. S. Slater Grimley, engineer:—

	Best London stoneware pipes.	Best approved country pipes.
C. Ford	£2,332 0 0	£2,237 0 0
M. S. Kitteringham	2,328 19 3	2,232 14 3
Allen Bros.	1,984 11 2	1,910 16 2
E. W. Hollingsworth	1,958 0 0	1,853 0 0
W. Neave and Son	1,946 0 0	1,813 0 0
Rich. Ballard, Ltd., Child's Hill, N.W.*	1,918 0 3	1,764 11 11
H. Lee	1,894 10 10	1,814 0 0
T. Adams	1,789 13 3	1,698 12 5

*Accepted in consequence of two tenders (a and b) taken together being the lowest.

LONDON.—For the erection of factory and warehouse, Valentine-place, Blackfriars-road, S.E., for Mr. James Pascall. Mr. W. H. Woodroffe, architect, 214, Great Dover street, S.E.:—
Hall, Beddall, & Co. £13,760 W. Smith and Son... £12,287
Higgs and Hill... 13,284 Harris and Wardrop... 11,623
George Parker... 12,295 James Smith & Sons* 11,227
*Accepted.

LONDON.—For alterations to the Manor House, including the erection of boiler-house, chimney, and two lodges, and for the erection of temporary buildings, for the London County Council:—

Alterations and additions to Manor House.
Leslie and Co. £22,429 Kirk and Randall* £20,812
W. Harbrow... 21,711

Erection of temporary buildings.
E. C. & J. Keay £77,798 0 0 Kirk & Randall £68,000 0 0
F. Gough & Co. 72,897 0 0 Humphreys...
W. Harbrow... 70,489 0 0 Ltd. 66,556 0 0
Hawkins & Co. 68,763 11 1 Leslie and Co.* 64,263 0 0
*Accepted.

The estimate of the asylums engineer in respect of the former work is £16,679, and in respect of the latter, £64,950.

LONDON.—For the erection of a block of flats (Block 1) at Sloane-court, Chelsea, S.W. Mr. Paul Hoffmann, architect, 152 and 153, Palmerston-buildings, Old Bond-street, E.C. Quantities by Messrs. Dunk and Bousfield, Billiter-square-buildings, E.C.:—
John Allen and Sons £18,950 C. F. Kearley... £18,610
Fred Britton... 18,900 Grover and Sons* 18,178
*Accepted.

LONDON.—For the erection of school, Eldon-road, Lower Edmonton, Middlesex (a three-floor school, with central halls, site covering 2½ acres of land), for the School Board for Edmonton. Mr. H. W. Dobb, architect, 110, London-wall, E.C. Quantities by Messrs. Young and Brown, 7, Southampton-street, W.C.:—
C. Gray Hill... £24,000 James Monk, Edmon-
E. Lawrence and Sons 23,360 ton* £22,810
*Accepted, subject to the approval of the Education Department.

LONDON.—For conversion of stable building, situate on the corner of William Street and Kingscote Street, into a warehouse for Messrs. Spicer Bros., Limited. William Smith, A.R.I.B.A., architect, 65, Chancery Lane, W.C.:—
Rider and Sons £1,578 Matlock Bros. W.C. £1,323
Ward and Lambie... 1,571 Stevens Bros.* £1,311
Wall and Co. 1,528 (Youge Park, Seven Sisters Road, N.)
Larke and Sons... 1,336
*Accepted.

LONDONDERRY.—For erection of stores, Strand Road, for Messrs. Robert Cooke and Co., oil merchants, London-derry, including machinery:—
Joseph Ballantine (accepted) £1,200.

KING CROSS (Halifax).—For the erection of wood-working machine works, with pattern shop, show-room, offices, and appurtenances on the Kenton estates. T. Lister Patchett, architect and surveyor, Halifax:—
Ben. Riley, Halifax... £1,340 10 0
John Dixon & Son, King Cross, Halifax 526 0 0
John Berry, Bank Foundry, Halifax 553 0 0
John Naylor and Son, Halifax 98 0 0
Joseph Bancroft and Son, Halifax 247 15 5
Total work let... 2,765 5 5
Do. Lowest tenders... 2,378 11 5
Do. Highest do. 3,148 5 0

RUSHDEN.—For the erection of cottages at Rushden, as per quantities supplied by Mr. H. Knight:—
T. Swindall... £3,505 R. Marriott... £3,345
C. E. Bayes... 3,500 H. Sparrow... 3,340
T. Willmott... 3,429 Whittington & Tomlin 3,315
F. Henson... 3,395 F. and C. Berrill* 3,295
Hacksley Bros... 3,390 *Accepted.

ST. ALBANS.—For erecting a house, Beaconsfield-road, for Mr. W. F. Fenne. Mr. Percival C. Blow, architect, 7, London-road, St. Albans:—
Miskin... £966 0 Savage... £800 0
Bushell... 895 0 Sparrow (accepted) 739 10
Dunham... 830 0

R. I. B. A.—A young ARCHITECT in PRACTICE is open to COACH by Correspondence a few CANDIDATES. Terms moderate.—Apply "Coaching," Office of BUILDERS' JOURNAL.

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SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E.

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BUILDERS desirous of TENDERING for ERECTION OF A NEW PARISH CHURCH at Gwyne, near Llangadock, in the County of Carmarthen, may send in their names to the undersigned,
E. H. BRUTON, F.R.I.B.A., Architect,
15, Queen-street, Cardiff.

CITY OF BIRMINGHAM. MAGNIFICENT BUILDING SITE IN THE VERY HEART OF THE CITY. TENDERS are invited for LETTING ON BUILDING LEASE, for a term of 99 years, from MARCH 25th, 1898, the LAND bounded by New-street, Paradise-street, Colmore-row, Waterloo-street, and Christ Church-passage, Birmingham, and forming the site of Nos. 72 to 79, New-street, Christ Church, and No. 3, Christ Church-passage, and having a total area of about 247½ square yards.

For plan and further particulars apply to BLOXHAM, SMYTHE, AND ETCHES, 106, Edmund-street, Birmingham.

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The Vestry of the above Parish require the SERVICES of a SURVEYOR between 25 and 40 years of age.

He will be required to devote the whole of his time to the service of the Vestry, to attend to the duties of his office at such times and in such manner as the Vestry may determine, and to perform all the duties which a surveyor is required to perform under the Acts administered by the Vestry.

He will be required to reside at a distance not greater than two miles from Charing Cross.

An inclusive salary of £900 per annum will be given for the first year rising by annual increments of £25 to £400.

Applications for appointment endorsed "Candidate for Vestry Surveyorship," must be accompanied by copies of three testimonials of recent date and be delivered to the undersigned at the Town Hall, Charing Cross-road, W.C., not later than FOUR p.m. on MONDAY, MARCH 7th next.

G. W. MURNANE, Clerk to the Vestry.
St. Martin's Town Hall,
Charing Cross-road, W.C.
February 23rd, 1898.

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Notes of Cases & Decisions in the Superior Courts.

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An Architectural Causerie.

A False Issue? We have lately passed through a period of some excitement with reference to the restoration of the west front of Peterborough Cathedral. Now that this excitement has died away, perhaps there might be an opportunity to ask whether the attitude of those who so zealously defend our ancient monuments from the hand of the restorer is always a sufficiently broad-minded

one which is old? Is not an artist's first concern—as an artist—with the Art—the human skill—which a building displays, not with the glamour of age, or the accidental beauty with which Nature has endowed it, though, as a man, he feels these things as others feel them? Perhaps we sometimes deceive ourselves, and, admiring an old building for the charm that time has thrown over it, invest it in our imaginations with artistic qualities which it does not possess, and which, if present, are quite independent of age, or the softening and harmonising hand of Nature. The added charm which Nature gives—the beauty of weather stains, the delicious quality and texture of surface—is no compensation to the architect for feeble planning, false construction, and the absence of composition and proportion, though to the painter who cares for none of these things, it may be all in all. Are we not too apt to assume that every old building is a fine work of Art because it is old, and, if it is threatened, to defend it as a fine work of Art, when it may not be such? Or, where it has a certain degree of artistic merit, to wildly exaggerate that merit, to make a stronger case? In the late contro-

who might think that their sympathy and support would be understood as an approval of methods, and an acknowledgement of claims, neither of which seem to them to be just and right. We value all old buildings for a thousand reasons. Because they are old; because our forefathers built them; because there clings round them a faint and delicate perfume of far-off days, which speaks to us of the human life of the past. Some of them speak to us in the language of Art also, in greater or less degree, and some do not. To confuse the two, to raise false issues, is to take the sacred name of Art in vain.

A. R. J.

The Beautification of London. For very many years Art lovers and others have pointed out what vast opportunities are afforded by our noble Victoria and Albert Embankments and Thames bridges for the beautification of our huge metropolis, which, though rich in favourable sites, is yet utterly deficient in statues—we do not mean of the one-man



LIVERPOOL ARTS AND CRAFTS EXHIBITION. ENTRANCE LODGE AND GATES AT LISS. DESIGNED BY W. H. SETH-SMITH.

attitude—whether these buildings are always defended for the right reason? It does seem, that, in the heat of controversy, the primary reason for which a building is erected is apt to be overlooked. More emphasis is laid on the fact that a cathedral, for example, should be a delight to the eyes of the appreciative connoisseur, a volume in which to read the history of the past, than on the fact that it is, first of all, a temple in which to worship the Deity. Do we not sometimes confuse human and historic interest with artistic interest? There are buildings of supreme human interest, of immense historic importance, which have little or no value as works of Art—as fine designs. Is not their human and historic interest alone sufficient to justify their preservation from the blighting touch of the restorer? Cannot he be condemned for outraging human sentiment and falsifying history, without being charged with the additional crime of destroying priceless and unique artistic creations? Sometimes he may do this as well, but usually he does not; priceless masterpieces of design being rare in this country, he does not often get the chance. Is not a good design which is new of more artistic importance than an indifferent or bad

versy, we heard the west front of Peterborough eulogised in terms which must have appeared, even to many architects who have a genuine admiration for this building, the terms of extravagant exaggeration. Everything is relative, and, if we exhaust the language of eulogy over this west front, what is there left to say of the unquestioned masterpieces of antiquity? The particular circumstances of the erection of this front, which add to its peculiar interest as history, detract from its value as Art. If defended on the grounds of history and human associations, and a certain degree of artistic value, every educated man must sympathise; but if defended as one of the grandest masterpieces of Art the world has ever seen, one cannot but feel that a false issue has been raised. It may be that any reason is justifiable, any exaggeration permissible, if only it help to impress the ignorant, to rouse the indifferent, and to save the building. To the practical man it may not matter how it is saved, as long as it is saved. But, at the same time, an extravagant attitude may have the result of alienating the support of those who retain some sense of proportion, who value the truth even above old buildings, and

order, which are all too plentiful—but of the group, allegorical or otherwise. Some years ago the Corporation put up a trial group in plaster at the head of Blackfriars Bridge, but after allowing sufficient time for it to become well coated with London soot, it was taken down, and buried with the scheme, never to be heard of again. Bases innumerable exist all along the river walls of the two Embankments, but not a single work of Art—if we except the handsome gas standards, which are really creditable—is to be found thereon. In the gardens are many statues, but the great majority of them are inartistic and ill-placed—the greatest monstrosity among them all being the latest—that of the Queen, facing Blackfriars Bridge, which is out of place in every respect. Going to the other end of the magnificent riverside boulevard, we now have a trial essay of Thornycroft's monument to Queen Boadicea, the only British warrior-queen our history affords. This, undoubtedly, is a fine piece of work, both in design and composition, and we hope to see the completed bronze work find a permanent situation here, beneath the shadow of our noble Houses of Parliament and within sound of the bells of the Abbey. As Frenchmen

have done justice to the memory of Charlemagne by the erection of the fine group before the Cathedral of Notre Dame, as Germans have done for Frederick the Great, and as Russians have done for Peter the Great, so ought we to do for those who have made our history and our nation what it is, though, of course, from this point of view, the traditional Queen Boadicea does not rank first. The only grouped memorial to which we can point in all London is the monument to the Iron Duke, and puerile as this is, it occupied fifty years in the accomplishing. Besides the many bases and sites which exist on our embankments and bridges, there are others in our parks and gardens, and at Trafalgar Square, where, if the National Gallery were only adequately ornamented, one might forgive and forget the wretched pepper-boxes which keep watch and ward over some of the finest pictures in the world. Why cannot some of our rich City merchants commission a few groups of statuary for the beautification of the Metropolis? The Boadicea group, as is well known, is the result of the heroic work begun by the late Mr. Thomas Thornycroft no fewer than forty years ago, while the complete group is given to the public by his son, Mr. Hamo Thornycroft, R.A., and provisionally accepted by a committee, of which Mr. W. J. Bull is the honorary secretary. The bronze casting has been successfully accomplished by Messrs. J. Singer and Sons, of Frome, the cost having been defrayed by public subscription. The figure of Boadicea is 18ft. in height, and the right hand grasps a spear, while the left is upraised as though to urge on the horses. The plaster cast weighs five tons. Cowper's words—

"Regions Caesar never knew,
Thy posterity shall sway,"

are on the pedestal, which will be given by the County Council, while the Government will provide the site. It is to be hoped that soon Queen Boadicea and her attendant maidens will be an accomplished fact in London, and that it will not be long before some companion groups—allegorical and otherwise—are erected. W. N. B.

EXCAVATIONS AT DELPHI.

M. PAUL PERDRIZET, the distinguished French archaeologist, in an address on the recent excavations by his countrymen at Delphi, gave a description of the tour of the precincts, starting from the Treasury of the Athenians and ending with the Stadium. He dwelt especially on the interest of the ancient precincts of Gaia, the Earth Goddess, the primitive mistress of the oracle displaced by Apollo. The rock of the Sibyl, the traditional seat of the first priestess, was shown, and M. Perdrizet hazarded the very interesting conjecture that the unfiled *omphalos* found in the Treasury of the Athenians was the original altar of Gaia herself. The beautiful, though badly mutilated, metopes of the Athenian Treasury were also exhibited. The Temple of Apollo was discussed, and in the course of its history the lecturer made clear how again and again it had suffered destruction from earthquakes. The Temple, of which the foundation has been laid bare by the French, is of the fourth century B.C., but built into its foundation at the west end are portions of the earlier Temple of the Alkmaonidae; fragments, too, of the sculptures of this earlier Temple remain in the mass of *débris* heaped up when the ground was cleared for the new structure. Below the foundations of the west portion of the Temple are clearly traceable the rocks that once formed the prophetic chasm noted by Aristotle as within the temple. While the French excavations were in progress Delphi was visited by an earthquake, which M. Perdrizet vividly described.

MR. T. G. TAYLOR, Douglas, Isle of Man, has been appointed Borough Surveyor of Ramsgate.

GABLES.

AS ADJUNCTS TO DESIGN.

IN any representation or description of domestic buildings, even of the humblest character, it is remarkable with what avidity artists, poets, and writers of fiction seize upon the picturesque feature of the gable. When the painter of the most conventional landscape adds a cottage to his woodland scene, it is the gable end, surmounted with its snug thatch or weathered tiles, which peeps out from between the neighbouring elms. Of such little dwellings it has been said that each is a poem in itself, and well have our English poets, from Chaucer to Tennyson, confirmed the idea. Nathaniel Hawthorne could hardly have given his famous romance a more piquant and attractive title than the "House of the Seven Gables." For how could such a habitation have anything but a charming and romantic history? To begin with, it must obviously have been a detached house, standing almost certainly

IN A PICTURESQUE LOCALITY,

and with garden and grounds of corresponding character. Not that the novelist leaves us in any doubt about the matter, for he gives a most graphic and loving description of the rusty wooden building, standing back from the street of a New England village, with its seven acutely peaked gables pointing on every side sharply towards the sky, and presenting the aspect of a "whole sisterhood of edifices breathing through the spiracles of one great chimney." Of course, the windows were lattice, with diamond-shaped panes; and it is only in harmony with the slumbrous old-world air which pervades the whole, that the inmates of the house should take their time from a sundial set in one of the principal gables. Modern dwelling-houses are not generally designed on a plan that will produce seven gables, though a great many are daily rising around us which give the

GRATEFUL RELIEF

of one or two. The street architecture of the period is conspicuous by the employment of this suggestive feature; and we have only to contrast the greater of the new erections with those they have displaced, or with such as still neighbour them, to become aware of the immense difference between the two types. Apart from their general dinginess, the monotonous effect of London houses, from the Georgian era to at least the end of the first half of this century, was largely due, the Globe asserts, to the almost entire absence of the gable. The necessary contiguity of the buildings in closely aligned streets, and the purely utilitarian views which prevailed in their construction, not only made gables a difficulty, but also supported—if it did not give rise to—the idea that they were not worth the trouble of introducing. In the then dreary dearth of artistic taste and impulse, when our grandfathers succumbed to the dominating influence of "the house unbecomingly" within, it is not very surprising that they should have been indifferent to what did not touch them so nearly, the appearance of their dwellings from without. Of course, in a long row of houses of this character, a true gable was only possible to such as stood at a convenient corner, or were at least on one side detached from an obscuring neighbour. But the eye, ranging up the depressing wall of sad-coloured brickwork thus disclosed, found no other termination than a sordid chimney-stack, surmounted in its turn by no more artistic finial than that which is known to fame as the "London chimney-pot." In modern houses, both detached and otherwise, and by no means of an ambitious character, gables almost necessarily figure. The Strand—when divested of the distraction of its traffic, always the most picturesque of London thoroughfares—now presents a wonderful vista of these cheerful and almost life-giving features; and the same may be said of the great mass of building which has risen during the last few years at the West End and beyond it. In some composite erections,

"altered and enlarged" by many occupiers—or, perhaps, by the varying mind of one—the gable sometimes appears as a more or less picturesque excrescence. Not seldom a dormer window has been "put in" in the roof, and the spectator finds himself face to face with its retiring little gable, fitting apex to the pleasant casement, perched—like a post of observation for beauty's eye—beneath. To perfect such a coign of vantage requires the familiar aid of the

EAVESDROPPING IVY;

but this, of course, is a piece of domestic taste which does not devolve upon the architect. When such an addition is fittingly made, it gives a wonderful air of cosiness and repose to the most substantial dwellings; and it is the saving grace of much of the suburban architecture now overwhelming us that it allows scope for some artistic treatment of the gable. Amid the enforced repetition of details, and the somewhat threadbare complaint against the iniquities of the jerry-builder, we are apt to lose sight of the real merits of design possessed by so many of the erections of villadom. A new terrace, or suburban road, involves of necessity a building scheme of almost endless repetition. But we have only to imagine these miles of houses without the relief afforded by the gable, to give that welcome feature its just meed of praise. If we could detach one of these comparatively humble dwellings, and transplant it to its own little separate plot of ground, it would appear in much pleasanter guise than as a mere unit among a hundred counterparts. But as the conditions of civic life are compulsory, we may be thankful for the

ONE BREAK IN ARCHITECTURAL MONOTONY

that redeems so many suburban roads from absolute triviality and meanness. Unity of design is as apparent in the general features as in the minutest details. The very railings and knockers proclaim their relationship. But, glancing upwards, we experience a genuine sense of relief. The old style gave us almost constantly a horizontal sky-line, to the last degree flat and depressing. The new offers us a series of gables—naturally of various degrees of artistic merit—which, detaching themselves from the prevailing level, suggest a touch of personality, a kind of "way of their own," in the buildings which carry them. As we penetrate further into the country the gable begins to assume a greater air of freedom and spontaneity. The charm of the few manor-houses of the Tudor and Stuart periods which yet remain is, of course, greatly due to their innumerable associations, and to the venerable aspect which commands our unconscious homage. But the loss of their gables would be cruelly felt. They are by far the most striking and speaking features of the school of domestic Architecture to which they belong; and, on their picturesque side, we could as ill afford to dispense with them as to despoil the church of its spire, or the tower of its turret or pinnacles. To the eye contented with the quiet, but always refreshing, details of a typical English landscape, nothing, perhaps, makes such an irresistible appeal as the weather-beaten

GABLES OF THE HALF-TIMBERED COTTAGES,

which here and there seem to haunt valley and wayside, as if beseeching some sympathetic ear to listen to the stories they could tell. Than these old "homes of ancient peace," with all their narrow and tortuous and, to the modern sense, inconvenient interiors, scarcely any offspring of man's labour is at once so engagingly quaint and so humanly suggestive. Shakespeare was born in one of them, and so seems to be brought nearer to ourselves than if he had been cradled in castle or hall. Happily, the most modest modern cottage may yet command its gable. If it be only the crown of a rustic porch, it is still welcome, and invariably attractive. In the summer it smiles through its natural garniture of roses and woodbine, while it reserves a background of ivy for winter wear. And so, however insignificant its artistic value, the humblest gable makes a cheerful and friendly overture which few would willingly reject.

ARTS AND CRAFTS AT LIVERPOOL.

BY ERNEST RADFORD.

THE feature, so far as we are concerned with it, of the Spring Exhibition in Liverpool, is the work of the decorative artist, and it is necessary, if only that we may be brief, to exclude the Indian *Objets d'Art* which come from South Kensington; the photographs which, *per se*, may be excellent, and works other than decorative, as for instance, engravings and drawings which may or may not deserve praise. Thus then, have we planned a day's work: a circle within a circle is drawn, and even so there is scope enough.

A further and useful distinction is made in the place between works in the nature of trade advertisements, for which places are found because they are paid for, and others more purely artistic in spirit, and this being so, it need scarcely be said that the latter are more interesting. The members of the Hanging Committee have shown most excellent taste, and seldom, if ever, has an exhibition looked better.

No. 6, "Peony Surf," by Alexander Rottman, is a bold and effective design for a stencilled frieze which is well described by its name.

The products of the Kirkby-Lonsdale Potteries consort very well, without suggesting comparison, with those of the Della Robbia Co. The ware would appear to be generally harder in substance. The pieces are sea-green or slate-blue as to colour, and generally well-designed. Instance, No. 73 and its companion, by J. T. and Sidney Firth.

"A Fairy Plaque," white on a field of blue, designed by Miss M. Wood for the Della Robbia Pottery Co., is a beautiful little work, and is only one of a number in which the imitation, adaptation, or appropriation of the Italian's manner has been very successful. The Company in question is fortunate in having examples to show of Conrad Dressler's designs, for now it appears that he has a separate establishment.

A mantelpiece exhibited by Messrs. Longman and Co. has already been seen in London. Mr. Lethaby amongst others, has contributed, we believe, to the work. The furniture exhibited not remarkable from our point



PERFORATED BALCONY PANEL IN THE MUSICIANS' GALLERY, "PADDOCKHURST," SURREY.
CARVED IN SPANISH MAHOGANY. BY W. AUMONIER.

of view, though it may be good on all other accounts. Examples of mechanical ingenuity applied coldly to problems of design that are never very easily solved should always, we think, have a place, if only to impress on the young the necessity of docile submission to rule. In illustration of this remark may be noticed, in passing, a piece of embossed leather by J. Hammer Hutchings, which is as good of its kind as can be, and lacks nothing but the *je ne sais quoi* which converts proseurs into poets, and engineers into artists.

Mr. Nelson Dawson, when not engaged with his wife upon the exquisite allied art of enamelling, is generally employed upon works of tremendous strength, and may be fairly described as the Vulcan of these latter days. There could hardly be anything finer than his fireplace. It is intended, it seems, for some vast baronial hall, and, this being so the work in all parts is most carefully judged and proportioned. We ourselves have tested our strength on the poker and tongs, and

feeble indeed we appear. The forward and upright parts of the andirons are surmounted by apples most cunningly wrought, which present to the eye a polished surface, with sections of brass inlaid and in-beaten.

Mr. Rathbone's good work gains daily in grace, for having mastered his obdurate craft, he is able to devote more time to design, but always with careful regard for the thing which he has in hand. "To have and to hold" the conveyancer says, and the phrase is fairly expressive of the infinite pleasure there is, or should be, in acquiring for use a thing which is perfectly made. Let Art be defined as Love at work, and let this modest exhibition of things both useful and beautiful be at once admired and desired. Even if enough had not already been said in a general way, it would be time now to speak of particular things which appear to the writer to be more than ordinarily good of their kind, and this, in so small an exhibition, may be easily done.

Messrs. Rottman and Co. exhibit (No. 33)



LIVERPOOL ARTS AND CRAFTS EXHIBITION. "WHEATFIELD AND TREES." DESIGN FOR CRETONNE.

BY J. AND R. SILVER.



LIVERPOOL ARTS AND CRAFTS EXHIBITION. "PINE SHAPES." DESIGN FOR WALL PAPER. BY J. AND R. SILVER.

as a specimen of fibrous plaster, a bit of ceiling decoration, designed by J. and R. Silver, which is in itself beautiful, and being in low relief is peculiarly fit for its place.

If we are correctly informed, the "Children in the Garden of Joy," exhibited by Stirling Lee, are intended for the same house as Nelson Dawson's great fireplace. The work, "to be executed in oak," will form, when completed and placed, one of the most sumptuous pieces of ornament that modern England has seen. As we have not ascertained exactly where they will go in the building, it would not be safe to praise unreservedly, as we might be inclined to do. Suffice it to say for the present that they court comparison with Della Robbia's "Singing Boys," which, designed for the organ loft of the Duomo, are now on the walls of the Bargello in Florence. They are fortunate who are able to see them here, as they will be lost to sight in a private house. To a plaster medallion, by Miss Rope, No. 60, our attention was drawn by a competent judge of good work, and, as we agreed for once, the artist may safely be praised.

The later attempts of the Fitzroy Society to popularise Art are by no means always successful. The inanities of the stained glass designers are all right in their place. So long as the senses are gratified, we are fairly content. Hedged about as they are by convention, they cannot be expected to disport themselves freely, or to make a liberal allowance of life to God's creature; but with these same conventions the pictorial, as distinct from the decorative, artist has nothing to do. Our children, whose name is legion, cannot understand them, and it is not desired that they should. The most pleasing are, of course, the most natural. In these the attention is properly drawn to the abstract idea, as of a sower—rather than to the personal peculiarities of any particular son of the soil.

Perhaps because we have seen them before we have omitted to mention the carpets of M'Voysey's design. It would be difficult here to justly apportion the praise between him

and the firms that produce them, as the general effect is entirely delightful. By the same versatile artist are the papers exhibited by Messrs. Essex and Co., which may serve to give an idea of what can be done by this firm. They have not sent their best, however.

Mr. F. W. Pomeroy, sculptor, is here represented by one little "plaster relief," but, small as it is, it is beautiful.

No. 109, "a fire screen," in stained oak and coloured gesso, should not be passed without notice—the artist, Miss Agnes D. Bell.

Mr. Anning Bell, as a Liverpool man, contributes largely, of course. "A Mother and Child," No. 116, a plaster-coloured relief exhibited by the Della Robbia Company, is one of the best things he has here.

There are three or four rooms devoted to the productions of the different Art schools, which may, as a whole, be heartily praised. They cannot, however, be specified here.

In room No. VI are the architectural drawings. It will be understood that examples of Architecture chosen for reproduction must necessarily be very few, and that, perhaps, even these few are here because of a certain pictorial charm which they possess, and which does not as a rule belong to the ordinary scale drawing.

The actual cost of the barrages on the Nile at Assauon and Assiout, for the construction of which the Egyptian Government has just signed a contract in accordance with the scheme for creating a great Nile reservoir, will be £2,000,000. Inclusive of interest, the total sum to be paid will be £4,800,000.

A PAINTED memorial window, replacing the plain leaded glass, has lately been put in the chancel of St. John's Church, Great Horton, Bradford. The window is in one large light, and is divided by a canopy-base into two subjects. The general treatment of colour and design is in keeping with former work in the chancel. The window is from the studio of Mr. William Lazenby, Northgate, Bradford.

EGYPT, THE BIRTHPLACE OF ARCHITECTURE.*

By G. A. T. MIDDLETON, A.R.I.B.A.

(Continued from page 74.)

THE axial passage of the Hypostyle Hall of Karnac lies between two rows of columns, 60ft. high, resting on circular discs as bases, then swelling suddenly and afterwards tapering to a capital which is of bell form. The abacus above, instead of being a thin broad bearing slab as at Beni Hassan, is cubical and comparatively small.

This central passage is roofed with flat stones in the usual way at a high level, but on either side are several rows of lower columns, carrying a roof at a lower level, light being admitted to the central portion by a series of clerestory gratings or openings. The shorter columns very much resemble the reeded columns at Beni-Hassan, having a bud-shaped capital of exceedingly similar character; but they have a swelling, or entasis, as have the taller columns, and are circular, and not reeded, in section. This, however, is not a necessary peculiarity of the period, for reeded examples are to be seen at Luxor, though the entasis is always present, and the abaci are small cubes which do not appear to bring the weight at all well upon the capitals.

The ornamentation, it may be remarked, was generally painted, and not carved, during the Theban period, with the exception of the Symbolical Winged-globe, which appears in bold relief in the cavetto cornice over every doorway—and excepting, too, the hieroglyphic inscriptions and representations of scenes from every-day life which are commonly found incised upon the wall surfaces. It seems that the ornamentation of the columns generally took the form of representations of reeds, and leaves, and binding straw bands, as if the column had originated in bundles of reeds or posts, and not in large tree trunks or in monolithic quarry supports.

Contemporaneous with the temple at Karnac, and undoubtedly of the time of Rameses II., is the Ramesseum. It again exhibits the same characteristics of arrangement as does the temple of Medinet Habou, erected by Rameses III., the first king of the 20th Dynasty, about 1200 B.C. So exceedingly conservative were the Egyptians in their religious rites, as well as in their general mode of living, the son always adopting the father's trade and working according to his rules and methods, that even in the three hundred years of the Theban period of Architecture little variety is to be found. Even in the later examples, as at Medinet Habou—and, of course, it will be understood that there are many smaller monuments which are not mentioned here—there is but slight change noticeable. There is the same extreme vigour and imposing strength, but sculptured figures are now more often found in front of and even attached to the square supporting columns of some of the colonnades and halls. The sculptor's art had reached a high state of perfection at a very early date, but its productions do not appear to have been directly connected with the buildings till somewhat later, and then gradually more and more. Still, it was at all times most architectural in character, harmonising in its massive solemnity in a most wonderful manner with the tombs and temples. Following strict laws of proportion and posing, it may be called conventional portraiture of the highest order; and so little variety of method is to be noticed that it is exceedingly difficult to understand the great distance of time between the erection of the great Sphynx, which, close to the Pyramid of Cheops, is by many authorities contemporaneously dated, and the well-known portraits of Rameses II.

Obelisks, too, were during the Theban period, frequently used as architectural features, being erected in pairs, as at Karnac, outside the entrance doors and pylons.

* A paper read before the Society of Architects on Thursday, February 24th, 1898.

Besides the erected temples, some few were excavated in the rock during the 18th and 19th Dynasties, the most important being that at Abu Simbel (Ipsamboul), of the time of Rameses II., and that at Mount Barkal, the date of which is more difficult to determine. The simplicity of arrangement noticeable at Beni-Hassan is no longer preserved, that of the axial passage way being followed, with every other detail of the open air temples, so far as was possible under the changed conditions; save that at Abu Simbel side chambers are to be found, as if they were subsequent excavations.

It was only the inner portion of the temple of Mount Barkal, however, which was excavated, the two outer courts or halls having been built against the face of the walls; and a glance will show how crude were the figure sculptures attached to the square columns flanking the axial passage. At Abu Simbel it was different. All there was rock-cut, and the entrance was made as nearly as possible to represent a magnificent pylon, with four colossal seated figures attached to and excavated out of the face of the rock. Inside, in the Entrance Hall (representing the colonnaded open court of the erected temples) are two rows of huge standing figures, certainly much smaller than the external statues, but still 60ft. high each, which appear to carry the roof, but which are, in fact, quite clear of it, looking straight in front of them, as all Egyptian statues do, apparently ignoring poor, feeble, pigmy man, with his short existence of three score years and ten.

Wonderful and noble edifices are these temples of the Theban Dynasties of Egypt; and a small point of additional marvel has recently been brought to light and announced by Professor Goodyear, in the Architectural Record of New York, in the fact that the courtyards of Luxor, Karnac, and Medinet Habou—and also that at Edfou, to be mentioned presently—are not quite square, the cornice lines at least being always somewhat curved convex to a spectator standing within the court, the curve being sufficiently subtle to be unnoticeable from below, but yet inducing an appearance of greater dimensions to the court than those which actually exist.

After the death of Rameses III.—with whom, it will be remembered the 20th Dynasty opened—the prosperity of Egypt rapidly declined, and at the close of the Dynasty in 1100 B.C., the state of the country was not much better than it had been when the shepherd kings (Hyksos) were in possession. The natural result followed, and all building of importance ceased, the Art of Architecture only reviving with the later prosperity under the Ptolemies, even though there was comparative peace during the 26th Dynasty, from B.C. 666 to B.C. 528. It was with the conquest of Egypt by Alexander the Great, in B.C. 332, and with the accession of his general Ptolemy, that building really recommenced, and, strange to say, upon almost precisely the same lines as a thousand years before. Throughout the length of Egypt the old temples were restored, and new ones built in a style which imitated and almost equalled that of the Theban period. Everything upon the island of Philae belongs to this time, the worship of Isis commencing there in 286 B.C., and the worship of Osiris being continued until 453 A.D.; and the greatest of the other erections were the temples at Denderah, 200 B.C.; Edfou, 237 B.C. to 57 B.C.; and Kom-Ombo. Even a casual glance at the plan of Denderah shows how similar it is to the temples of the 19th dynasty. There is the inner sanctuary, then the pillared hall, and then the open court, with its pylon entrance, all arranged about an axial passage. The differences are those of proportion and detail rather than of general effect. There is a certain loss of massiveness and dignity, compensated by greater elegance, especially in the small single-cell temples, such as that commonly known as Pharaoh's Bed upon the island of Philae—a delicate little gem. Like much of the work of this period, it depends largely for its effect upon its carving, for the ornamentation which a thousand years previously had been painted upon the buildings was

now carved, and it was in the capitals of the columns that the change was most marked. The bud form has by this time gone out of use, but the bell is enriched with foliage lavishly applied. As a rule fern and other leaves are represented rising above the binding straws, still present as binding together the reeds of which the columns were supposed to be built up. Often they assume most graceful forms, and the Corinthian capital of the Greeks is frequently found closely followed in general scheme. A strange point to be noticed is the retention of the axial arrangement even in these ornamental capitals, those nearest to the axis on either side being alike and no others, or, in flanking colonnades, the first on the right of the axis being similar to the first on the left, the second to the second, and so on.

Another form of capital which was now in common use was square, with the mask of a female head carved upon each face; while the abaci above the capitals were also carved in representation of small pylons. The columns, too, no longer rest upon circular discs as bases, but upon a continuous step, or stylobate, and, more than this, they are joined to one another, save at main axial openings, by a dwarf wall reaching up to about one-third of their height. This wall has a small cavetto cornice, like those to the main colonnades, the doorways, and the pylons, frequently ornamented with simple vertically rising leaves.

These comparatively slight differences are all that distinguish Ptolemaic from Theban work, yet they are sufficient to enable a judgment to be pronounced at once as to which period any particular building belongs.

Thus it will be seen that there are four great Egyptian building periods, with gaps of time between, the styles of the first and second being distinct, and of the third and fourth almost identical, in spite of an interval of nearly a thousand years between them.

The death is announced of Mr. William Spooner Till, who for nearly forty years filled the office of city surveyor of Birmingham.

EXPANDED METAL.*

ITS RELATION TO FIREPROOF CONSTRUCTION.

By J. F. GOLDING.

THE structural novelty of expanded metal has never failed to attract and interest all those who have seen it. It is metal distributed in that latticed form which never goes out of fashion, and it can be applied to almost every purpose for which open metal work is at present used. It is about nine years since expanded metal was first produced in commercial quantities, and then with considerable difficulty, as a machine had only recently been invented which would operate on the metal so as to simultaneously cut and open it. The perfecting of the details of this machine had still to be invented, and the knowledge of suitable metals for cutting and expanding had to be acquired. It was then an entirely new article, manufactured by a method necessarily peculiar to itself, and with an untried field for its employment. It is not surprising therefore that considerable money and energy were misdirected in the endeavour to vitalise it. There was, however, a serious limitation to the use of the products from this machine, owing to the fact that they could not be expanded from plates above one-sixteenth of an inch in thickness, so that on account of this, and the imperfections of manufacture, the use of the metal was restricted almost wholly to lathing for plastering. The necessity for heavier metals and for greater accuracy in cutting was therefore ever apparent, and the result was the addition of another member to the family of expanded metal inventions in the form of a machine which operates alike upon the thinnest or thickest metals required, and with great precision. Before detailing

SOME OF THE USES

to which expanded metal can be applied, it will be, perhaps, best to draw some comparisons

*A paper read before the Civil and Mechanical Engineers' Society.



THE LIVERPOOL ARTS AND CRAFTS EXHIBITION. ROMANO BRITISH MOSAIC. "HEAD OF POMONA." FROM A PAVING IN THE MUSEUM AT CIRENCESTER. BY ARTHUR T. BOLTON.

between the methods and manufactures of the old expanded metal and the new, which will assist in making clear the reason why the old metal was not more generally applied for exposed uses. The old metal was limited to thin sheets because the construction of the machine necessitated peculiar cutters which would not stand the strain required for heavy metals. The new machine is the embodiment of simplicity and strength in all its parts, and is only a large shearing machine having one lower stationary blade of the required length (say 8ft.) and a top blade, or series of blades with corrugation, representing half the sizes and forms of the meshes longitudinally, also means for feeding the metal forward to the cutters and shifting it sideways between every stroke. The old machines each produced but one size of mesh of width of strand, and were limited in practice to sheets of, say, 4ft. in width. The new machines are individually capable of producing any size mesh by simply changing the upper corrugated cutters, and the width of the strands may be increased or diminished while the machine is in action. The old machine slit and opened the metal, giving much the same effect as if it was first slit and afterwards drawn open, which naturally caused the metal to shorten in length as it was opened or expanded in width, this shortening being about ten per cent. The new machine produces the expansion by stretching the strands as they are cut away from the plate, and consequently the finished article is of the same length as the original strip of metal, while it is increased from twice to twelve, or even more, times in width; that is to say, a sheet of steel 8ft. long by 6in. wide can become a sheet of expanded metal 8ft. long by 6ft. wide, or more. In the old machine motion was given to both the upper and lower cutters, both sets consisting of single cutters stacked alongside each other to the full length of the machine, and in this double movement the cutters had an almost uncontrollable action upon the metal, with the effect of distorting the produce both in respect to the shape of the strands and of the finished sheet. The effect of the new machines is perfect alignment of cutting as to strands, and perfect squareness and regularity of the finished sheet throughout. There is, therefore, besides, the

ALMOST LIMITLESS CAPABILITIES

of the new machines as to variety of products, great economy over the old, both as to cost of construction and operating charges, and as to the quantity of metal plate required to extend over a given area. The patented processes and machines leading up to the present perfected system of manufacture are unique innovations from the routine of mechanical discoveries, and have been surprises even to engineers engaged in avocations most nearly associated in kind, so that I would ask you to pardon me if I feel some pride in the fact that there is sufficient similarity between all features of these various developments to establish them as my own offspring. Until quite recent years the order of buildings, wherein expanded metal is now largely employed, were provided with floors of wood joists, and wood stud partitions, and wood lathing. This was dictated by the very obvious reason that the laths are but faggots with only an under surface of plaster to protect them from fire, and are left free above, to communicate flames one to another, thus forming a fire trail to both sides of the wood joists supporting the floors and ceilings. The marked change towards the further elimination of woodwork from buildings and the substitution of all iron columns, girders, joists, etc., is shown by the fact that more than 15 per cent. of the expanded metal lathing used prior to, say, five years ago, was for application to wooden joists, studs, etc., the balance of per cent. being in combination with other iron work about the buildings, whereas at the present date these figures are reversed in nearly equal proportions. The expanded metal lathing now not only serves to encase the main girders and columns, but also to form suspended ceilings under what were once termed fireproof floors, consisting of rolled girders with concrete fillings between them,

also for forming double or solid partition walls. The importance of protecting exposed iron works from the direct contact of flames has become so apparent that new structures without these provisions are rarely to be met with. In fact, there is a general disposition to cover these in the older buildings, and the stimulus to this is noticeable immediately following the recurrence of great fires, such as the Cripple Gate conflagration. The advantages possessed by

EXPANDED METAL LATHING,

rendering it so largely useful as a building material in combination with plasters, are that it is fire-resisting, manufactured in form convenient and economical for application, being in flat sheets and requiring no stretching, has the maximum uniform key, and is buried within the plaster. The first proposition, *i.e.*, fire-resisting, needs no sustaining; but the question is asked: "Will it not expand under considerable heat to disturb the plaster?" This has been answered in the negative by many tests, and the reason is that the sheet steel from which it is made no longer presents the same rigid plane for expansion or buckling, but that it has been slit into numerous strands of small section, and these reticulated to such a manner as to permit each of such strands to expand, thus reducing its effect to an infinitesimal quantity, and this is compensated for by the yielding nature of the plaster. The first form of sheet metal lathing with which I became familiar consisted of corrugated and perforated sheet-iron. Sheets of such lathing, when used externally on buildings exposed to intense sun heat, continue to expand and contract, and it has been found impossible to keep it covered with cement mortar. Instances like these prove that for metal purposes the less there is of the original sheet left in its flat and corrugated form the better. The second proposition asserts its convenience in form for application, and this will be understood when it is known that it can be produced in flat sheets up to 8ft. in length, and in width of from a few inches to several feet; in fact, wide enough to encase the largest girder or column if desired. In one direction the material is sufficiently rigid to span a considerable space without other support, and yet sufficiently yielding to form self-supporting corners, etc., while in the other direction it is readily bent and retains itself at any desired angle. The third proposition asserts superior keying qualities for plaster. The strands forming the meshes lie at an angle of nearly 45 degrees to the plane of the sheet of lathing, so that if the plaster only filled the sheet equal to its thickness it could not be removed except at the angle of the strands without it was first broken up. The key, however, in practice will be seen to pass through the meshes, and overlap the strands, effectually burying the lathing in the mortar, and thus preserving it from exposure and oxidation.

PARTITION WALLS.

The second development of expanded metal in structural work was the formation of solid partition walls, and the present system of erecting them was due to two suggestions, one to an inquiry as to the use of the metal without supports while imposing the plaster, and the other a criticism on the use of angle iron studs to carry the lathing. The first inquiry was in the interest of economy, while the criticism was, that the angle irons, being of stiff section, must, under heat, expand and distort or destroy the partition. As a result, we have a near approach to meeting to both these suggestions, *viz.*, the taut wire studs, into which the lathing is interlaced and covered with plaster to a thickness of 1½ in. or 2 in. These are economical, both as to first cost and in saving of floor space, and are as fireproof as the nature of the cement plaster permits. The item of saving of space is of very considerable importance in large cities, especially in sub-dividing offices, in forming stair and lift shaft casings. This invention germinated in England, and was taken up with great avidity in the United States, and is employed in many of the largest modern

buildings, the area of such partitions erected annually probably extending a million super yards. They may be built within any existing building and at any point without other foundation than the flooring, as they are comparatively light, and when set hard become a monolithic slab, equally distributing their weight. The advantages of this feature over segmentary constructions will be readily understood. They are surprisingly sound proof, as has been witnessed by many tests at London.

FLOORS.

The third development of the use of expanded metal in fireproof building construction relates to its use as a tensile bond in concrete floors. This was also a very natural adaptation of the metal, because of its manifest and surprising supporting strength. This stiffness is due to the fact that the strands are set edgewise to the plane of the sheet of expanded metal, their combined width representing the width of the original sheet from which it is made. Thus, a sheet of expanded metal of 3in. mesh and ½ in. wide strands represents a strip of steel 6in. wide set upon edge. The carrying capacity of the 3in. metal, it is true, is not so great as the 6in. width uncut would be standing edgewise, for the reason that in the expanded form the strands do not set vertically, but, as in the lathing, approaching 45deg. from the plane of the sheet. But, as these are supported in their lattice-like position one by the other, their carrying power is many times that of the original sheet when laid flatwise, and tried as a beam. This metal of varying meshes and weights is used for the manufacturing of flooring, paving slabs, lintels, &c., but most commonly for the making of concrete floors *in situ*. This is done by laying the expanded metal loosely upon the ordinary centering, so that it will reach from girder to girder, or wall to wall, as the case may be, and imposing the concrete upon it. It is not possible in practice to either have the centering on the expanded metal so exactly flat, but that with the weight of the workmen treading upon the sheet in the act of imposing the concrete will cause it first to slightly rise up at some point, thus permitting the concrete to pass under the metal, and which prevents it again from returning to the centering, and as they tread again at the other points, the metal will be found to have taken its place wholly within the concrete, so that when the centering is removed the metal is not visible but is in the best position as a tensile member and bond to the concrete. No. 8 expanded metal, which is the 3in. mesh, ½ × ½ strands, made up in a slab of concrete 6ft. 8in. long × 2in. wide × 3in. thick, has been proved to increase the strength of the slab more than tenfold (see page 2 of Messrs. Fowler and Baker's report). All the tests made by this eminent firm of engineers gave this as about the average result. The utility of this metal in concrete as against rods placed at right angles, as is done in the Monier system, is evident when we take into consideration the fact that the expanded metal is a continuous solid connected

WEB WORK WITHIN THE CONCRETE,

and that weight imposed at any one part distributes the strain over a larger area than it is possible for disjointed rods to convey. And, besides, a large sheet of expanded metal, say a square of 8ft., is laid in a few seconds, whereas considerable care is required in placing rods a given distance apart in either direction, and especially so if they require to be tied at the intersections. There are several systems of concrete flooring to which expanded metal has been adapted, *viz.*: first, a continuous slab lying above girder or wall supports; second, the metal placed between rolled iron joists, and resting upon their lower flanges. This latter practice may be done *in situ* or by casting the slab and placing them between the joists as they are laid. If cast *in situ*, a strip of the lathing mesh, somewhat wider than the joists, may be laid beneath and longitudinally with them, so that the concrete passing through the larger mesh with it, and thus providing a surface to receive plaster beneath the joists when the centering is removed. It has been

extensively used in concrete arches. In some cases the metal lying immediately upon the arched form of centering; and in other cases, as at Kennet Wharf, London, E.C., the arched centering was filled with concrete to slightly above the crown of the arch, when the expanded metal was laid flat from girder to girder, and the filling in of concrete continued as described. As before stated, there is no single system of floor which seems to lend itself to all requirements, and this particular floor (generally described as the channel arch system) has proven to be most economical where spanning of considerable distance is necessary. Its special advantages are that it produces an exceedingly rigid floor with a minimum amount of material, and its consequent lightness. The flooring may finish up either with or without a suspended flat ceiling or with a dome ceiling. There is no limitation upon the span of flooring or roofing to be

CEMENT ADMIXTURES.

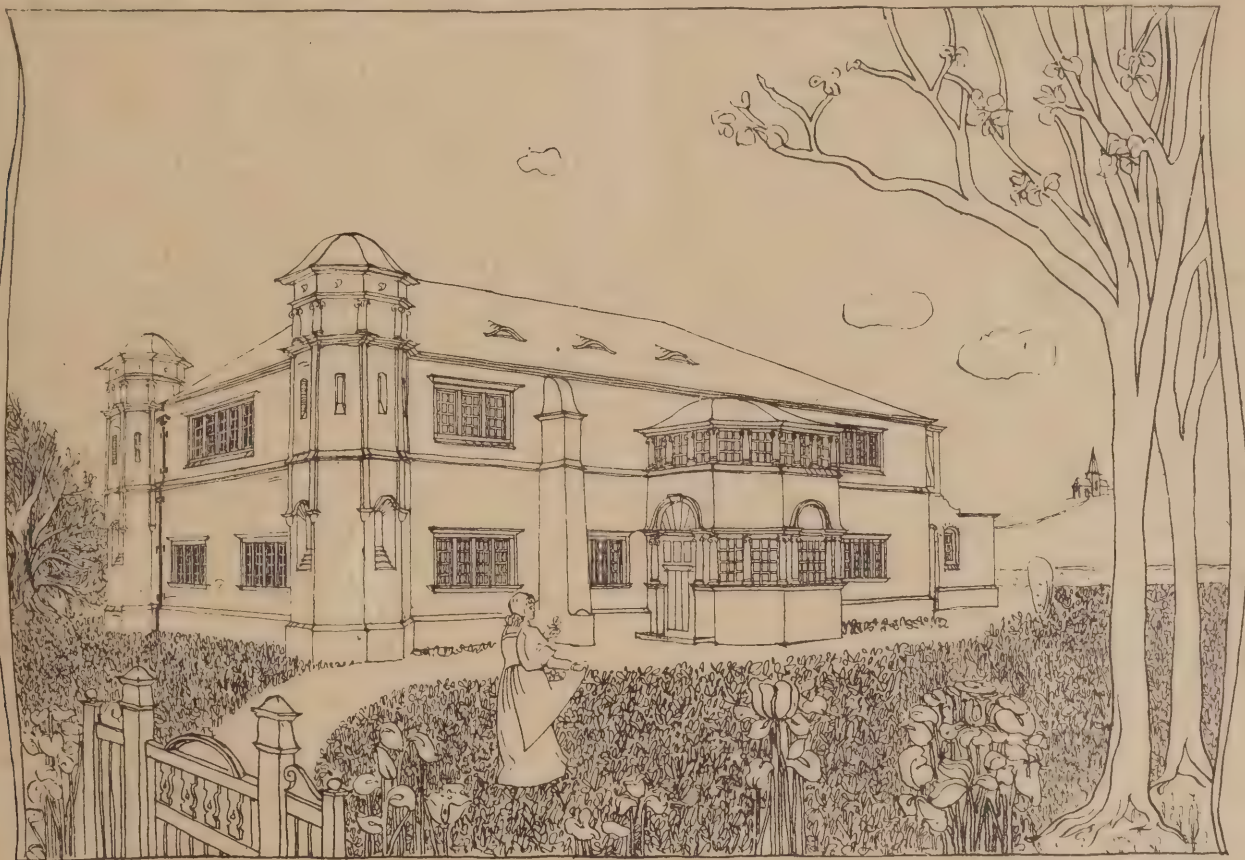
FOR the past three years, investigations into the question of cement admixtures, have been made by the Cement Trade Section of the London Chamber of Commerce. They instructed Messrs. Stanger and Blount, of Broadway, Westminster, to make extensive experiments with mixtures of Kentish ragstone with Portland cement, and also obtained valuable evidence from Mr. D. B. Butler, Mr. Gilbert Redgrave, Mr. H. K. Bamber, and Dr. Michaelis of Berlin, and others. After full consideration the Section adopted the following resolution:—"That Portland cement be defined as a mixture of two or more suitable materials intimately and artificially

MIXED IN THE REQUISITE PROPORTIONS, and afterwards properly calcined and ground, to which nothing has been added during or

for minor effects, caused by the slight slaking action of moisture commonly present in ordinary ragstone, the part played by ragstone mixed with cement is purely mechanical. The product obtained from the two materials is merely a mechanical mixture, and is in no sense a chemical combination. In our opinion such a mixture cannot correctly be termed Portland cement.

GYPSUM ADDED TO CEMENT

for the purpose of regulating the setting time, in quantities not exceeding 2 per cent. of the weight of the cement, has no deleterious influence on the quality of the cement." With respect to other materials, Messrs. Stanger and Blount say that they are unable to give a general opinion as to their influence on cement when mixed with it, and that they would have to report separately as to each after long and careful investigation; and they express a



BYFLEET VILLAGE HALL COMPETITION. DESIGN BY CHARLES E. VARDELL.

obtained by this system within the average requirements for buildings. One of the first works carried out on this plan was a reservoir roof, having a clear span of 60ft., as is indicated on water reservoir litho plate. In this instance the arches were about 8ft. deep at walls on the apex of the roof, some 6ft. above the walls, giving a rise of about 14ft. The channel supports were 7ft. apart, and the thickness of the concrete between channel supports, including the finish, about 3in. These floors of 12ft. spans, the channels at 4ft. centres with 12in. rise with 3in. thickness of the flat concrete, had been loaded with 17cwt. per super foot, and variously otherwise tested, until their strength and utility has been fully established. I trust if I have not succeeded in conveying anything specially new, still that I may hope to have awakened such interest in the matter as will enable those of an inventive turn of mind to improve upon the methods of using expanded metal.

THE Hornsey District Council has now made arrangements to complete the purchase of Churchyard Bottom Wood for the sum of £25,000, the whole amount having now been received. The acquisition of the wood has taken nearly two years to accomplish.

after calcination, excepting that an addition not exceeding 2 per cent. of gypsum is permissible for the purpose of regulating the setting." That the following rule be adopted:—"That if any material whatever, excepting 2 per cent. of gypsum, for the purpose of regulating the setting be added to the Portland cement clinker during or after calcination, the article so produced shall not be sold as Portland cement, but under some other distinctive name." The above resolution was based upon the evidence of various experts, which cannot be better summed up than in the following conclusions of Messrs. Stanger and Blount:—"Ragstone is a natural form of calcium carbonate mixed with siliceous matter. It is an inert substance incapable of setting when gauged with water. Ragstone, when mixed with Portland cement, undergoes no chemical change, and does not combine with cement either in the dry state or when the mixture is gauged with water. Mixtures of ragstone and cement have a specific gravity lower than that of unmixed cement, and indeed correspond closely in specific gravity with that calculated from the respective specific gravities of the two materials. The specific gravity of normal ragstone may be taken as 2.70, and that of normal cement as 2.15, so that the difference between them is substantial. Save

strong opinion, in conclusion, that whatever be the effects, whether good or bad, of the admixture of any material whatever with Portland cement clinker after calcination, the article so produced cannot legitimately be termed Portland cement. Each of the other experts examined endorsed this view, and the Section approve and adopt it.

THE memorial stones of new club premises at Hebden Bridge have been laid. The architect, Mr. Jesse Horsfall, Todmorden, has adopted the style of English Renaissance.

THE latest suburban theatre is at Dalston, and will open early next autumn. The theatre is the first built on the plans of Sir Henry Irving's "safety" theatre. The architects are Messrs. Wylson and Long.

THE new swing bridge across Leith Harbour has been opened for traffic. Sir William G. Armstrong, Mitchell, and Co. were the contractors for the bridge, which has taken eight months to complete, and has cost £8000.

FUNDS are being raised for the completion of the fabric of Christ Church, Moldgreen, Huddersfield. The church is without chancel and vestries. Plans of the desired extensions have been prepared by Mr. G. F. Bodley, consulting architect for York Minster.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

March 9th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slates; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, could, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

We understand that Mr. J. F. Micklethwaite, F.S.A., of Westminster, has been appointed surveyor of Westminster Abbey.

THE whole of the plans prepared by the six selected architects in competition for the new lunatic asylum which the Birmingham Corporation propose to erect at Holly Moor, near Rubery, have been deposited at the Council House. The names of the competing architects are Messrs. Cossins, Peacock, and Bewlay, Colmore Row; Messrs. Mansell and Sons, Colmore Row; Messrs. Ingall and Sons, Temple Row West; Messrs. Cross, Brooks, and Nicholls, Temple Row; Mr. Frank B. Osborne, Bennett's Hill; and Messrs. Martin and Chamberlain, Colmore Row. Before making a final selection the Asylums Committee will take the advice of Mr. G. T. Hine, of Parliament Street, London, the consulting architect to the Commissioners in Lunacy.

THE Estate and Burial Grounds Committee of the Leicester Town Council have reported that, as authorised by the Council of October 27th, 1896, they invited designs from the local architects for laying out the proposed new cemetery on the Gilroes Estate. Three sets of designs were sent in, and the committee appointed Mr. John Belcher, of 20, Hanover Square, London, to act as professional adviser, and the committee awarded the premiums in accordance with Mr. Belcher's report, as follows:—First, £50, Messrs. Goddard and Co.; second, £30, Mr. Stockdale Harrison; third, £20, Mr. Charles Kempson. The designs of Messrs. Goddard and Co. have since been carefully considered by the architects in conjunction with a sub-committee, and certain modifications have been made. The committee recommend that the plans of Messrs. Goddard and Co. be adopted, omitting for the present certain specified work. The original estimate of Messrs. Goddard was £27,573, but the revision of the plans and the omission of work reduces the estimate to £20,797, to which must be added: Sexton's lodge at Groby Road entrance, with office, committee-room, &c., attached, £800; architect's commission, £1080; clerk of works' salary, £300; total, £22,977. There is also the following work which was excluded from that to be provided for by the architects, viz.: Belt of trees surrounding the cemetery, £1500; fences not otherwise provided, £1600; making a total estimate of £26,077.

At the third meeting of the newly-formed Commercial Section of the British Fire Pre-

vention Committee the question of independent tests with fire-resisting materials was dealt with from the manufacturer's aspect. The sixty firms associated with the section were strongly represented, and Mr. Farrow, F.R.I.B.A., the new chairman of the section, presided, supported by Mr. Edwin O. Sachs for the executive. After considerable discussion, various resolutions were passed expressing the desirability of arranging reliable independent tests in such a manner that would in every way merit the confidence of the general public and of the professions interested. Some of the principles as to the manner of arranging the tests, the construction of testing stations, &c., were also formulated for the consideration of the executive. With these resolutions expressing the support of the Commercial Section as regards independent testing, the execution of this scheme is practically decided, and it now only remains with the executive to make workable arrangements of a thoroughly scientific but practical character. One of the most important pieces of work on the committee's programme has thus been inaugurated, and London will at last have a centre where reliable information regarding fire-resisting construction will be easily obtainable. New York and Hamburg, it will be remembered, have already had some similar tests, but on a smaller scale than here intended.

THE exhibition which has been got together at the City Art Gallery at Leeds as the attraction for this spring is hardly so strong as some of its predecessors. Whilst there is an abundance of respectably painted and more than respectably painted canvas, pictures of real mark and distinction are not very easy to find. These vicissitudes are, of course, unavoidable, and some other year no doubt, without any greater effort on their part, the committee will find themselves able to grace their collection with a few conspicuously fine works. In the present exhibition there is plenty to interest and afford pleasure, and several hours may be spent pleasantly and profitably in making the tour of the different rooms. Among the artists who contribute are Mr. J. MacWhirter, R.A., Mr. Colin Hunter, A.R.A., Mr. David Murray, A.R.A., Mr. J. M. Swan, A.R.A., Mr. J. Aumonier, R.I., Mr. Alfred East, R.I., Sir Wyke Bayliss, P.R.B.A., Mr. Ernest Normand, and Mr. G. P. Jacob-Hood.

THE inhabitants of the city of Auckland and its surrounding districts in New Zealand, having decided to erect a statue of the Queen in commemoration of the sixtieth year of Her Majesty's reign, the Committee appointed to make the necessary arrangements obtained, through the Agent-General for New Zealand in London, several designs from some of the leading sculptors, and it has now been decided to accept the offer made by Mr. F. J. Williamson, of Esher, to supply a replica in bronze of the statue which now stands in the hall of the Royal College of Physicians and Surgeons on the Thames Embankment. This statue is 7ft. 6in. in height, and the base measures 2ft. 10in. by 2ft. 8in., and it will be erected on some one of the beautiful sites so well adapted for the purpose which are to be found in the city of Auckland.

THE Shakespeare Memorial at Stratford-on-Avon has just been presented with a fine stage portrait in oils of the late Mrs. Stirling, painted by Anna Lea Merritt in 1884, eleven years before the actress's death. She is represented in the character of the nurse in "Romeo and Juliet," and the likeness is a very good one. Lady Gregory, better known as Mrs. Stirling, acted in the Shakespeare performance at Covent Garden in aid of the fund to purchase the birthplace in 1847, and made her last appearance on the stage she had ornamented for half a century in 1886. There is already a likeness of her in the gallery in another of her great impersonations, that of Peg Woffington in "Masks and Faces." The present portrait was bequeathed to the Memorial by Sir Charles Hutton Gregory, K.C.M.G. Another recent donation to the gallery is a

portrait of the late Mr. H. Graves, the well-known art connoisseur, whose fine collection of Shakespeare pictures was presented to the Stratford Gallery at his death. His portrait is destined to hang by that of Ellen Terry, presented by the actress herself a few weeks ago when she was in Stratford, and it is the gift of his son, Mr. Algernon Graves, F.S.A. Mr. Graves was one of the first governors of the Memorial. In anticipation of the April performances, new seats have been put in the theatre of a comfortable character, and the lighting on the other side of the curtain has been improved, while the accommodation has been added to by the construction of a store room for properties under the pit.

WRITING to the Daily News, Mr. G. Hawley says:—"The historical landmarks of the country should be watched with jealous eyes when under process of so-called restoration. I passed through St. Albans recently and saw that the Abbey was again under course of repair, and by the same hand as replaced a perpendicular window in the transept with a glaring wheel one. This time it is the tower (to judge by the previous work of the architect) that is doomed to change. Before that it was the tower of St. Michael's Church that was reconstructed on an entirely different design. Now, here is the case. St. Albans as a city is apparently not rich enough to undertake the work, so a rich amateur steps in—with the above result. Now, are there no men of deep architectural knowledge who can give us an opinion as to the necessity for changing such important buildings—they are landmarks of English history—or for them to be done privately? The case of the tower of St. Albans Abbey is a matter for swift action. The battlements on the west side are already being stripped."

THERE seems at last to be a definite intention in official circles to undertake the rehousing of the National collections in a proper way. A Bill is shortly to be introduced to make the necessary financial arrangements for the work that has to be done, and unless any unforeseen accident occurs to delay the progress of this measure, we may fairly hope to see before long an improvement in the none too creditable condition of affairs at South Kensington and elsewhere. There is a great deal to be done, and it is to be hoped that the work when once undertaken will be carried through with all possible speed. It is not, perhaps, a good augury that there should be so little progress to record with regard to the rebuilding of that inconvenient exhibition place, Hertford House. At least another eighteen months must elapse before the Wallace Collection is made accessible to the many people who want to see it.

ONE of the best possible signs of growth in the influence which artists exercise upon public taste is given by the anxiety of the managers of the leading theatres to secure the help of prominent painters in productions that present scenic opportunities. Recently Mr. Alma Tadema rendered valuable assistance with the scenery and costumes of "Julius Caesar" at Her Majesty's Theatre, and now at the St. James's Theatre the scenery and dresses of "Much Ado About Nothing" owe much of their excellent effect to the co-operation of Mr. Arthur Melville and Mr. Graham Robertson. It is a matter of no little importance that such influences should be encouraged, for our theatres have too long adhered to obsolete spectacular conventions, which are often opposed to true pictorial effect.

THE seventy-second exhibition of the Royal Scottish Academy has been opened in Edinburgh. The exhibition this year is of good average merit, though neither by the members nor associates nor by outsiders are there any works of what might be termed sensational interest. As usual, the Council has obtained on loan a few pictures by contemporary artists. These include a work of great accomplishment and beauty by M. Munkacsy, the Hungarian-French artist, called "My Mother's Old Song," which has been lent by Mr. J. M. Fraser, Rosemount, Perth; and from the same collection

has been obtained a picture by M. Bouguereau, entitled "Mischief," which can hardly be regarded as an important example of the art of this well-known French painter. The subject smacks too much of the print-shops of the Rue de Rivoli. Three pictures by Mr. Orchardson have also been received on loan, viz., the portrait of Sir David Stewart, Aberdeen, and the portraits of Mr. and Mrs. James Tullis, Glasgow. The last-mentioned, in primrose tints, was at the Royal Academy last year. The President, Sir George Reid, is represented by two portraits painted in his virile and trenchant style. They are of Professor Davidson, of the Free Church College, Edinburgh, and of Mr. W. Carnie. The beautiful portrait by Mr. Lavery of Miss Mary Burrell, Glasgow, which was so much admired both at Burlington House and at the Salon Champ de Mars, has now reached Scotland, where it will greatly raise the artist's reputation; and from the hand of Mr. James Guthrie there are three portraits of great merit.

The further details of Mr. Middleton's sketching tour to the Hartz district of Germany at Easter, which are now before us, show that all possible arrangements have been made in advance to secure smooth working, and the saving of time. This is of great importance, for with everything ready mapped out, earnest students can go straight to work, without being bothered by the thousand and one hindrances of independent travel. Leaving London on the night of April 6th, the party will travel to Harwich, meeting there the contingents joining from York and Manchester, and will travel by the comfortable boats of the G.E.R., in which the sleeping accommodation is all that could be desired, to the Hook of Holland. All the next day will necessarily be devoted to a railway journey through Holland and Germany, passing through many interesting towns *en route*, reaching Hanover in time for a late dinner. As Hanover is a comparatively modern town—though it contains some old brick houses of the fifteenth and sixteenth centuries, a Gothic Rathbans, and two fine brick churches—only one day is to be given to it, in order that more time may be devoted to Brunswick, the next town visited, with its magnificent cathedral, its many churches, and its well-known Cloth Hall and Weigh House. Of the other three towns, Halberstadt, Goslar, and Hildesheim, it need only be mentioned that they are situated in the midst of the Hartz district, and are as picturesque and interesting in themselves as is the country round.

The south side of the new wall of Westminster Hall is already decaying, and Earl Stanhope is pressing the Government to take early steps to repair it, which may cost a considerable sum. Yet the old building itself, which dates from the Norman Conquest, is still in first-class order and needs no expenditure.

The Royal Institute of British Architects is engaged, as the English representative of the trustees of the Phebe A. Hearst Fund, in distributing prospectuses and ground plans for a world-wide competition in which English architects are particularly interested. The buildings and their arrangements, for plans of which premiums amounting to £10,000 are offered, are to comprise San Francisco Bay, with a magnificent view of the Golden Gate. Some idea of the magnitude of the project is gained when it is said that the buildings, when completed, will form a pile over thirty times the size of Somerset House, and that the space to be disposed of to the best advantage by the genius the trustees hope to develop through the competition, is a strip of sloping land over a mile in length and half a mile in width at the widest part, covered in places with charming groves and having near one of its edges a pretty watercourse. The programme points out the necessities of twenty-eight groups of departments, but leaves competitors free to concentrate or distribute, to study new dispositions, and to suggest—either in writing or by means of drawings—any new ideas that they may have perfected. In the general

observations attention is particularly called to the opportunities for planning a group of beautiful edifices by the statement that no limitations are placed in the materials to be used, and that California abounds in beautiful and durable building-stones.

ALL the plans must be in the hands of the United States Consul at Antwerp before July 1, when they will be submitted to an international jury. There are to be two competitions, a preliminary and a final. The final competition will be between the authors of the ten to fifteen best plans selected at the preliminary competition, members of the jury for which are: Mr. R. Norman Shaw, R.A., London; Mons. J. L. Pascal, Paris; Mr. Paul Wallot, Dresden; Mr. Walter Cook, New York; and Mr. J. R. Reinsteine, San Francisco. If only ten plans are retained, £300 will be paid to the author of each of them; if fifteen are accepted for the final competition, £250 each will be paid; if more than fifteen, not less than £200 each. Competitors successful in the preliminary competition wishing to journey to San Francisco to study the site of the proposed buildings on the ground will be paid first-class return fares to California, and will have six clear months in which to send in their amended plans. A sum of £4000 will be devoted to premiums for the best plans, £1600 of which amount will be awarded the plan classed as No. 1. The buildings of the new University of California will finally be erected in sections made up of the best of the different prize-winning plans submitted.

MORECAMBE means to stand on its dignity rather more firmly than of yore. It has rejected plans for a new police station which the Lancashire County Council propose to set up, at a cost of £7000. The fact that the plans have been approved by the Home Office, the Local Government Board, and the County Council does not count. The Morecambe District Council has ideas of its own on the subject, and can at least express them. The Council has also rejected a proposed revolving tower, which was to adorn the Marine Road, having discovered that it would be certainly ugly and probably dangerous. Lastly the Council turned up its nose at the suggestion of a refuse destructor, because it might create a smell in a rapidly improving neighbourhood. They passed the destructor after all, it is true; but the simple circumstance that Morecambe has already advanced to the point at which ugliness and smells are objected to, is little short of marvellous, as an æsthetic development.

A MEETING of the Liskeard Vestry was recently held to again consider the subject of the condition of the church tower. On behalf of the Tower Committee, Mr. S. Bone said they had taken counsel's opinion, which was that having regard to the fact that there were no funds available to restore the tower, and that the Chancellor did not well seem to grasp that the tower had become dangerous, the vicar and churchwardens should lay the case before the Chancellor again. In accordance with that, the churchwardens wrote the Chancellor, pointing out that the mischief was still increasing; that the tower must inevitably fall, and was dangerous to life; whilst it was absolutely certain that should it collapse, great damage would be done to the church itself, whilst the tower would be totally destroyed. In reply, the Chancellor asked whether the parishioners were favourable to the proposed application for a new faculty, and whether funds would be forthcoming to rebuild the tower. The required answer was given, and the Chancellor wrote that he would be prepared to grant a faculty to take down and rebuild the tower as it now stood with one stage not more than 15ft. added to its height and a vestry, the Norman arch of the tower to be preserved. Probably the best course, the Chancellor advised, would be to withdraw the present petition and all proceedings, and then to file a faculty to carry out the work in the way proposed. Taking into consideration the expressions of the Chancellor, Mr. Bone said the committee had decided to recommend

the vestry to abandon the appeal and apply for a new faculty. The Chancellor, he might add, did not object to the committee taking down that portion of the tower which was absolutely dangerous.—Mr. A. De C. Glubb proposed a resolution abandoning the appeal against the decision of the Chancellor of the Diocese refusing a faculty for removing the present tower of the church and rebuilding it, and that the previous application for a faculty be withdrawn and a fresh one applied for as soon as new plans were approved, Mr. Sansom to prepare the fresh designs. The motion was adopted.

THE Marquis of Huntly, Lord Rector of Aberdeen University, has received from Mr. A. Marshall Mackenzie, A.R.S.A., architect, a statement to the effect that the question of the retention or not of Greyfriars' Church as part of the University buildings at Marischal College is a subject to which he had given much consideration ever since the first proposals for extensions towards Broad Street were made, and had frequently advised that the old Gothic building should be retained and restored. He held this opinion from artistic reasons quite independently of the strong antiquarian and historical ones that existed. The quadrangle would lose in effectiveness if thrown entirely open by the removal of the church. In any restoration of the Greyfriars' building, the mean-looking modern parts, such as the wing towards the quadrangle and the gable next the entrance gate, would be demolished, the church lengthened by a bay, and the beautiful series of seven windows facing Broad Street filled with tracery. The restored building would therefore have quite a different appearance from that presented to the eye at present. Its dark freestone colour would form a refreshing contrast to the light grey granite of Marischal College, and the long horizontal lines of the church would, in the same way, enhance by contrast the vertical lines in which Marischal College was designed. The slight departure from the symmetrical position of the south tower, which the retention of the church would involve, was a distinct gain to the general artistic effect of the buildings, and would prevent a feeling of over-rigid symmetry. He feels quite certain that the effect of the whole will be much more delightful and beautiful if the old building is retained to contrast and group with the new, than if it were demolished, and the quadrangle entirely exposed.

THERE appears to be a good deal of misapprehension with regard to the Peel pictures, concerning which so much has been heard lately. The impression has got abroad that the gallery at Drayton Manor contains the collection formed by the great Sir Robert Peel, whereas the larger portion of this collection was sold to the nation by the late baronet about twenty-five years ago for £70,000, and now hangs in the National Gallery. The Drayton pictures are chiefly portraits, with a few works of the Dutch and Italian schools.

A STRIKING instance of zeal in the service of the Church comes from Southrey, Lincolnshire, where the curate of Bardney (Rev. Mr. Knox), who qualified as an architect before entering the Church, is now acting as clerk of the works, foreman of building operations, joiner, bricklayer, and general labourer on the church he has himself designed. The church is of wood, felt-lined, match-boarded inside, possesses a beautiful spire, and is built upon a concrete floor, which the curate has himself assisted to lay down.

MR. WATTS, R.A., who recently celebrated his eighty-first birthday, is in excellent health at Limnerslease, his charming house at Guildford. Fifty years ago Mr. Watts had been a resident in Italy for some years, living at Florence in the retinue of Lord Holland, who was our attaché there. A relic of that time is to be found in the portrait of Lady Holland, which was first exhibited in the Royal Academy exactly half-a-century ago. Another result of that friendship is to be seen in the

artist colony now to be found on the outskirts of Holland House, where Mr. Watts settled on Lord Holland's property, to be followed by Leighton, Fildes, Prinsep, Stone, Colin Hunter, Shannon, and others. Mr. Watts's wide experiences as a portrait-painter leave him two strong impressions—that Mr. Gladstone is the most distracting sitter he ever had, and that Lord Rosebery looked ten years younger after his retirement from the leadership of the Liberal party.

A BILL was passed through Parliament some two years ago for the widening of Blackstock Road which slopes upwards to Highbury Park. This improvement involved the pulling down of a number of old tenements which caused the road to narrow for about 120 yards, and the making up the road to the same width as the other part of the Blackstock Road. To do this a hoarding was placed on the margin of the ground occupied by the said tenements, and in order not to obstruct the traffic any longer than was absolutely necessary it was decided to make up the new portion of the road, pavement, etc., first. This was done. Next the other side had to be made up to correspond with the new portion. After this work had been in hand some weeks, it was discovered that the new portion of the road was considerably higher than it should be, and the consequence is that all the work that has been done to that portion has to be taken up and done over again in order to get a level road. The foreman who superintended the first half of the road-making was so disgusted with the interference of the Works Committee, according to local residents, that he resigned, and another man was found to continue the work.

THERE is so great a tendency in London to allow considerations of utility more than their due weight, and to neglect æstheticism, that such a scheme as is now being discussed for the rearrangement of Westminster needs to be most carefully watched. It is undeniable that from time to time the rebuilding of even the most interesting quarters of the Metropolis must become advisable, and that we have to face the necessity of adapting streets that have survived from past centuries to present-day requirements. But it is most important that this process of remodelling should be carried out on really judicious lines, and that what are called improvements should be so in something more than name. Nowhere is this need for care greater than in Westminster. There we have, grouped together, some of the most admirable examples of Architecture of various periods, and some of the most valuable illustrations of our national history. To destroy these, or even to diminish their picturesqueness and their old-world charm, would be to commit an act of vandalism most discreditable to our modern civilisation; and, as a building syndicate can hardly be expected to have much conscience in matters of artistic moment, the necessary steps to prevent reckless destruction must be taken by independent people of taste.

THE tragic fate of a French lady, recently reported, seems to carry with it a warning of the danger of the French window. The French laugh at our "guillotine windows," and greatly prefer their own, which open inwards, and freely admit light and air. But many of us think, and this case goes some way to prove it, that they open too low. The opening is commonly little more than a foot from the floor, and, though there is a safety bar at some distance above, this itself is too low to afford absolute security against accident. Then, the opening wastes space within the room, as a certain free way has to be allowed for the movement of the frame on its hinges. This makes it impossible to place a dressing table quite near the pane. Moreover, the vertical opening floods the room with cold air from top to bottom. With the much abused guillotine, the stream may be confined to the upper part of the room. Yet ours is still a cumbrous contrivance, in spite of everything, especially when it "sticks," or when the cords begin to feel the effects of age. The ideal

window has yet to be invented. Perhaps something that would set the whole apparatus of the guillotine in motion by the mere turning of a handle within the room would meet the want. This, however, might turn out to be only one more contrivance to go wrong.

It is still hoped that the first quarter-dome, of which there are four above the pillars, that serve to support the great central dome of St. Paul's Cathedral, will be unveiled at Easter. The actual mosaic work has long been completed, and the decoration of the surrounding portions is making steady progress. Here Christ is represented as crucified in the centre of the Tree of Life, beneath whose wide-stretching branches stand on one side Mary, the mother, and St. John; on the other the two Mary's. Shadowed, too, by the extremities of the boughs are, to the right, Eve, in supplicating attitude; to the left Adam, pointing towards the Sacrificed One. From the base of the tree bursts a stream of water symbolising the Gospel, and overhead the sun, in token of God's love, shines on the central figure. In the south-west quarter-dome the cartoon for the entombment has just been put in place, one of the four subjects intended to illustrate the doctrine of the Atonement. Here again Sir William Richmond aims to convey a sense of underlying joy. By the open tomb before a cross the body of Christ lies in the arms of an angel, eight of the Apostles gathered round; but the scene is a garden bright with spring flowers, through which flows the River of Life. The remaining quarter-domes will contain presentations of the Resurrection and the mission of the Apostles.

THE much-maligned Liverpool Town Hall is at last to be handed over to the care of the decorator. Professor Simpson, of University College, has been entrusted with the designs for the entrance hall and grand staircase. The building is one of the most deceptive pieces of Architecture in the city. From the outside it appears much smaller than it really is. It is not until one passes along the suite of magnificent apartments leading to the great hall that a real conception of its immense size is gained. It may not be generally known that a large painting, by Paul Delaroche, of Napoleon crossing the St. Bernard, hangs in one of the salons of the town hall. The picture is an important example of Delaroche's most polished manner.

THE Council of the Society of Arts recently attended at Marlborough House, when the Prince of Wales, president of the Society, presented the Albert medal to George James Symons, F.R.S., "for the services he has rendered to the United Kingdom by affording to engineers engaged in the water supply and the sewage of towns a trustworthy basis for their work, by establishing and carrying on during nearly forty years, systematic observations (now at over 3000 stations) of the rainfall of the British Isles, and by recording, tabulating, and graphically indicating the results of these observations in the annual volumes published by himself."

"A HOUSE AT BEXLEY," illustrated on our central pages, was designed for a doctor, and contains on the ground floor, in addition to a hall, dining-room, and drawing-room, a small surgery, with separate entrance for patients. On the first floor there are five bedrooms, with bathroom and three large attics in the roof. The general character of the interior suggests rather the homely comforts of the farmhouse than the flimsy gentility of the villa. The fireplaces are arranged as ingle-nooks, with wide, open hearths and settles. The walls are finished with panelling, and the ceilings with massive beams. The hall, which is carried up through two stories, is the principal feature of the house, and is arranged so that it is not a passage for servants or visitors, and may be used as a sitting-room. The proposed materials for the building are red brick, with half-timber work and tiled roof. Mr. W. H. Baillie Scott is the architect.

KEYSTONES.

A NEW reredos has been erected in Rufforth Church, Yorkshire.

THE Court of the Founders Company contemplate holding an exhibition during the summer of designs in brass and other metals.

AT Portsmouth a new hospital infirmary and nurses' home has been erected, at a cost of £24,000, in connection with the Portsea Island Workhouse.

A MEMORIAL chancel and screen and credence table have been added to St. Thomas's Church, Wincobank, Sheffield. The screen is of oak, and was made by Messrs. Jones and Willis, of London and Birmingham.

THE Church of St. Mary Magdalene, Massinger Street, Old Kent Road, has been restored. Among the gifts towards its furniture is a stone pulpit, removed from St. John's, Kingston Vale.

A NEW chapel has been built at Morley, from designs prepared by Mr. T. A. Buttery, at a cost of £2500. The building is in the classical style of Architecture, and provides accommodation for 577 adults, and is lighted by electricity.

RECENTLY the new parish church at Roehampton was consecrated. The church, when finished, will be one of the most beautiful in the diocese of Rochester. It has been enriched by many valuable gifts. The architect is Mr. G. H. Fellowes Prynne.

THE Church of St. Hugh, in Crosby Row, Southwark, has just been dedicated. Constructed from designs by Messrs. Carpenter and Ingelow, the church has cost £4700, but £5000 more is wanted to complete the upper portion.

THE present church at Rowley Regis, built fifty-five years ago, is in a dangerous condition. Plans have been prepared to rebuild it at a cost of £10,500, including £2500 for the tower. The work is to be done in sections the first of which will cost £5000.

THREE shops are about to be erected at Hill Rise, Richmond, according to the designs of Mr. P. Hoffmann, of 152-3 Palmerston Buildings. Mr. Hoffmann has also designed a block of flats for Sloane Court, Chelsea, the estimated price for the erection of which is £18,178.

THE new polo pavilion, at Ranelagh, which occupies the same site as the old one, is rapidly approaching completion. The structure has been designed by Mr. Alfred Burr. Its length is 118ft., in two storeys, the whole being built of the b-st pitch pine, with two verandahs running along its full length.

THE famous Gabrielli collection of old engravings has been purchased in Rome by Mr. Davidson Dalziel from Prince Gabrielli. The collection consists of nearly 7000 specimens of the graver's art, and none of them is of later date than the seventeenth century. The price paid was £3500.

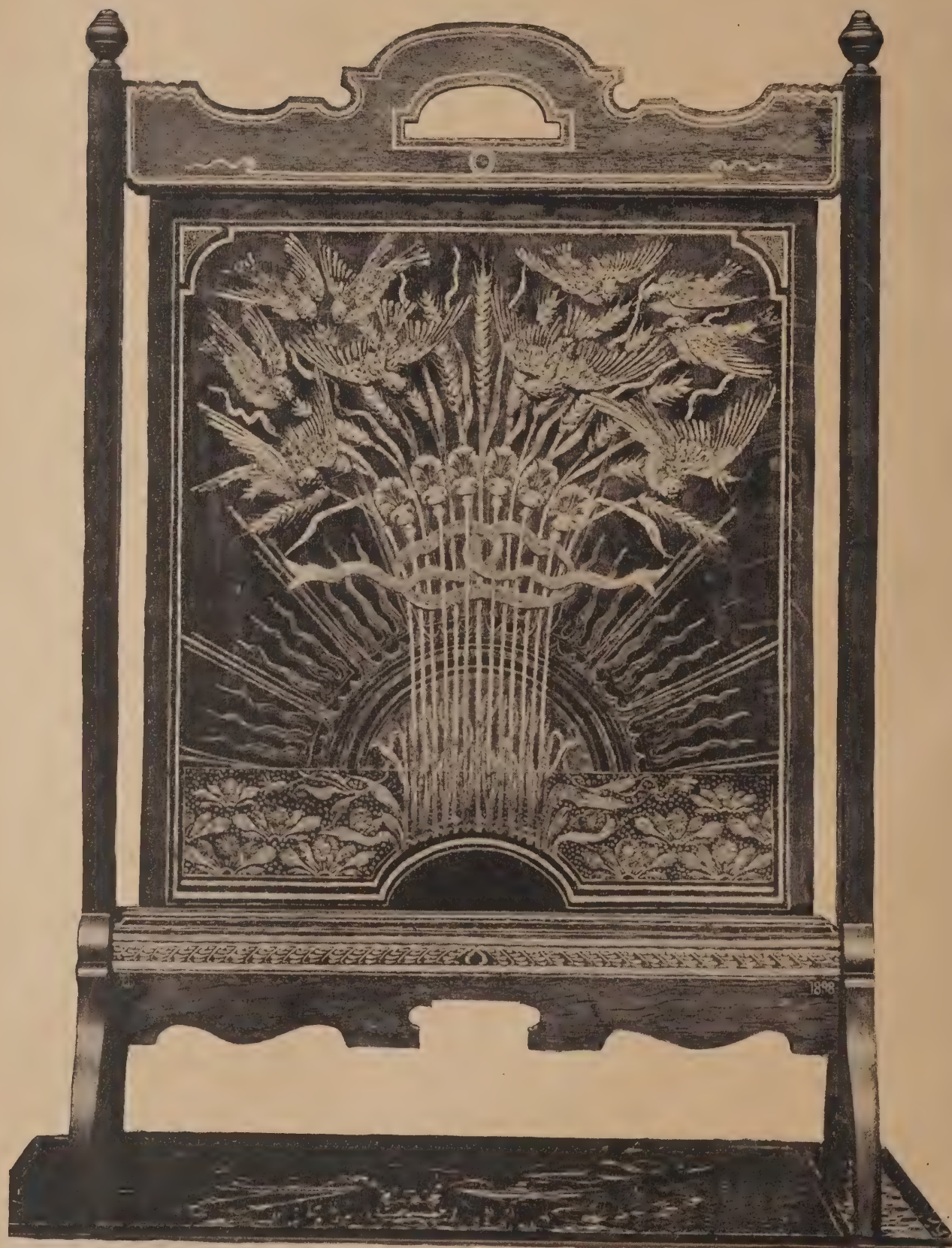
A TESTIMONIAL in recognition of the long and successful services of Mr. Francis H. Webb, as secretary of the Institution of Electrical Engineers, has been presented to him. The testimonial took the form of a cheque for over £600, together with a diamond brooch for Mrs. Webb, and an illuminated address.

THE railway which the Congo State has in contemplation will have a total length of 1000 kilometres, and will run from Acuentana, on the River Stimbiri, and Redjaf, on the Nile. From Acuentana the railway will follow the Stimbiri as far as Eringa, and continue via Niangara and Lazzoland.

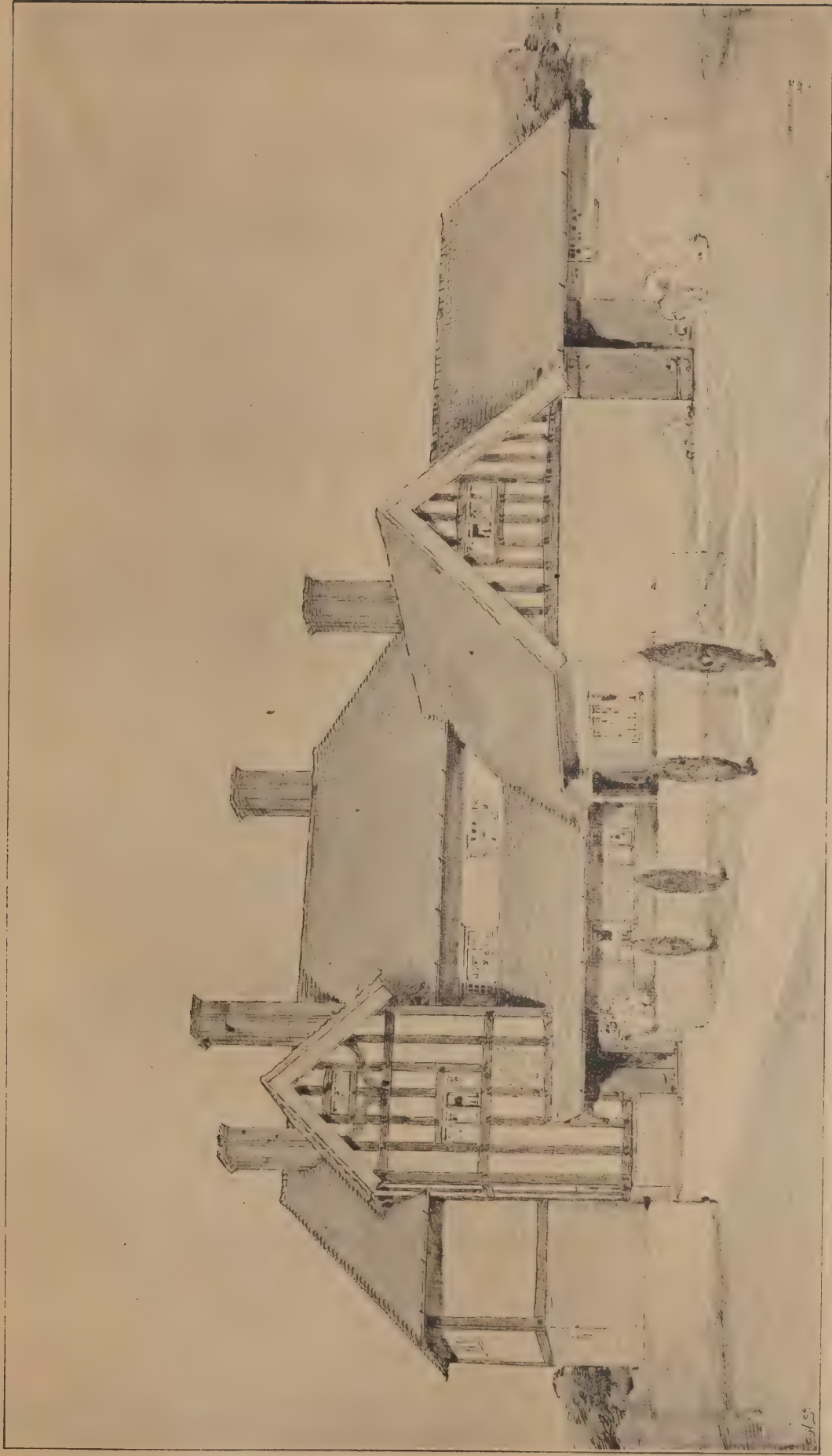
AT St. Gabriel's, Warwick Square, Pimlico, has been erected a reredos, altar rails, and other decorations in the sanctuary, at a cost of £2500. The subject of the reredos is the Crucifixion. The rest is opus sectile, by Powell, of Whitefriars, and consists of types of our Lord as Prophet, Priest, and King, and of His Passion.

THE Plymouth Corporation has applied to the Local Government Board for sanction to borrow £70,000 for the improvement of Tavistock Road and place, £10,215 for the provision of houses for the working classes, £2750 for works of street improvements, £2600 for works of sewerage, and £2070 for the erection of a police station.

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LIVERPOOL ARTS AND CRAFTS EXHIBITION. FIRE SCREEN IN STAINED OAK AND COLOURED GESSO.
DESIGNED BY MISS AGNES E. BELL.



A HOUSE AT BEXLEY DESIGNED BY W. H. BAILLIE SCOTT.

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Surveying & Sanitary SUPPLEMENT.

MARCH 9TH, 1898.

Practical Carpentry and Joinery.*

By GEO. ELLIS.

(Continued from page vi.)

CENTERING is the name given to various rough frames, constructed of wood, to support stone, brick, or cement arches during their building and until they have set. They must be constructed in such manner that their shape will not be altered by the pressure of the arch, be easy of erection and removal, be capable of gradual release, or "striking," and, as they are purely temporary appliances, be designed so as to injure the timber as little as possible, with the view of its subsequent use for other purposes. They should always be of ample strength for the occasion; to avoid any crippling due to flexure of material, the dead weight being thrown to the foundation. Centres for arches of large span require careful trussing, as the strains vary, both in amount and direction, as the work progresses. There is always a tendency, but more especially in flat arches, for the crown to rise whilst the haunches are being built. This is sometimes met by weighting the crown with the material for the arch, but, in view of the constant and discriminating attention required to properly arrange the load, it is better, apart from the expense, to so truss the centre with tie-rods and struts that it will be practically unalterable.

Fig. 77 shows the form of centre in use for turning small brick segmental arches. The rise being less than the width of an ordinary board, the two ribs R are shaped to the curve, kept parallel by stretchers S nailed on the bottom, and the circumference covered with laggings about 2in. by 4in. For brick and other rough arches these are spaced about an inch apart, but for gauged brick or groined arches they are fixed close to each other, and the surface made regular with the plane for the bricklayer to mark his courses upon (see Fig. 82). When stone is the constructive material, the laggings are made stouter, and are spaced at wider intervals—from 6in. to 14in., according to the size of the blocks in

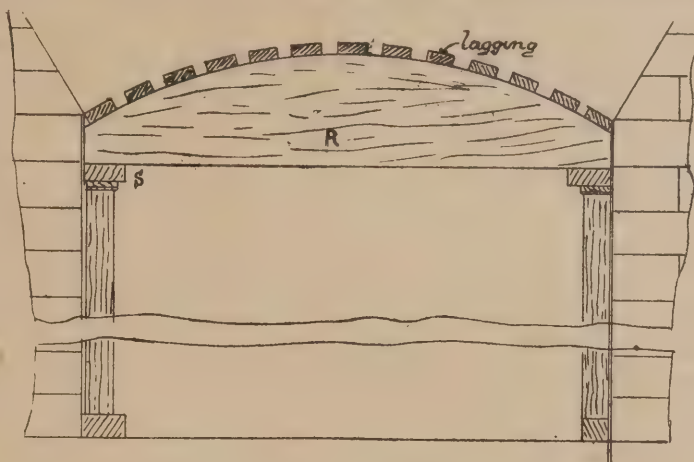


FIG. 77. A SMALL RIB CENTRE. ELEVATION.

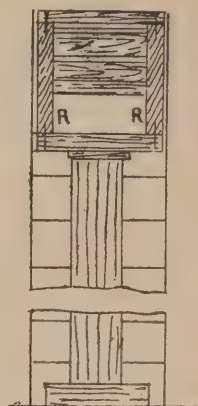


FIG. 78. SECTION.

use. For all ordinary work it will be found better to increase the number of ribs rather than the thickness of the laggings. A centre for a larger span, with built-up ribs, is shown in Fig. 79. This kind may be safely used in spans up to 12ft.; the boards forming the ribs are cut to shape and nailed in two thicknesses, the butt joints of each layer falling in the middle of the length of the contiguous piece; the joints should be perpendicular to the curve, and it is essential that they fit properly; one or more braces B may be introduced, as the weight to be carried may indicate, and pairs of folding wedges are used between the supports and the stretchers S for the purpose of setting the centre up level, and so that it may be struck gradually. Sometimes, to make this form of centre stiffer, two tie-pieces T are used to each rib, bolted together with coach screws, and the ribs cut of stouter stuff (in one thickness), the lower ends shouldered between the ties, as are also the ends of the braces; but it will be found advisable, and also economical, to use a framed centre (as shown in Fig. 81) for large spans, or where the weight to be carried would render it dangerous to use a "built-up," whose strength mainly depends upon the accuracy of the joints.

The framed centre (Fig. 81) is formed by

trussing a frame of rough timber as a foundation for the ribs, to which the laggings are attached. This can be made similar to either a king or queen-post truss, as the span may require, but the strains should in all cases be directed to the points of support; when possible, there should be intermediate supports to the tie, but this is not always practicable, the roadway at times being required for the passage of material, and in such cases the ties must be made deeper to ensure stiffness. As will be seen by reference to the figure, the main timbers are arranged in the form of triangles, and framed together with stub-mortise and tenon joints, the shoulders being brought up, with timber dogs. The ribs are then cut in between the ends of the braces, to which they are spiked, and their joints dogged up. These ribs are usually cut out of 9in. by 2in. stuff, and when, in consequence of the quickness of the sweep, they are pitched up at the joint, a short puncheon, P, is introduced. The laggings, 3in. or 4in. by 2in., are nailed on the ribs at intervals of an inch. The ribs should not exceed 3ft. apart, and are further tied by the three stretchers, S. A piece of quartering, also called a stretcher, is usually spiked to the head of the supports to steady them whilst the centre is wedged up level. There should be a post under each rib, and in the middle this form of trussing will do for spans up to 25ft. Beyond that a kind of queen-post truss should be used, for which consult the chapters on "Roofs," No. 142.

In building continuous arches, as in vaults or tunnels, the centering is made about 6ft. or 8ft. long, and so much of the arch turned, the centre being then lowered and pushed forward to receive another bay. Sometimes, when it is desired to push on the work rapidly, a second centre is used, and is set up next the first, after the first portion of the arch is turned. The second is then proceeded with, and when completed the first centre is struck, and re-set at the other end of the second, and so on to the finish, giving time for each section of brickwork to set whilst the succeeding one is being built. Fig. 82 is the elevation and section of a close-boarded centre for a Gothic arch, and clearly shows the method of preparing these for gauged work.

(To be continued.)

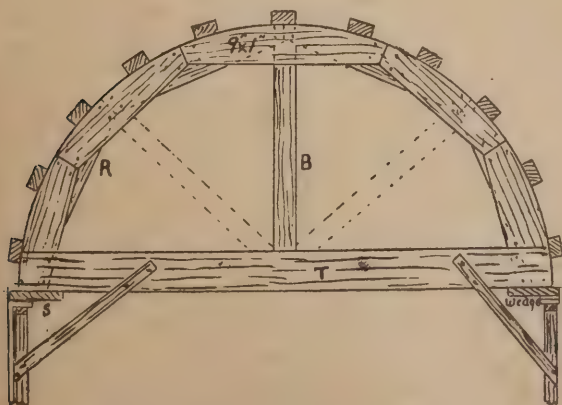


FIG. 79. A BUILT-UP RIB CENTRE. ELEVATION.



FIG. 80. SECTION.

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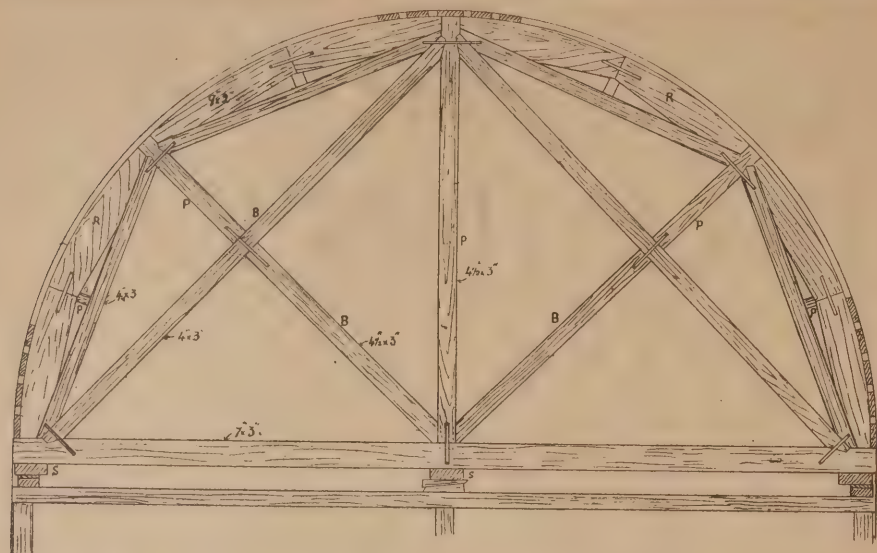


FIG. 81. A FRAMED CENTRE FOR LARGE SPANS.

SUBSIDENCES.

AN IMPORTANT CASE IN THE LAW COURTS.

IN the High Court of Justice (Chancery Division) Mr. Justice North, a few days ago, gave judgment in the case of *Jordeson v. the Sutton, Southcoates, and Drypool Gas Company*, the trial of which occupied the Court for a fortnight. The action was brought by the owner of some very small houses in respect of injury to the houses arising during the construction of a very large gasholder close to them, and of prospective obstruction of access of light to the windows of the houses. The houses are of a poor class, being let to weekly tenants at rents of about 2s. a week, but the case raises important points of law as to the right of a person to abstract water, or water and silt, by works on his own land from a substratum of his neighbour's land, and so let down the surface to the injury of buildings thereon, and the

MUCH-DISCUSSED QUESTION

whether a corporation or body, given powers coupled with corresponding duties in the exercise of those powers, are entitled to interfere with the rights of neighbours in the enjoyment of their property. Mr. Jordeson, the plaintiff, is the owner of some twenty-four cottages in Hull, adjoining the premises of the defendant Gas Company. In July, 1896, the Gas Company began, by their contractors, Messrs. Holmes and King, who are also defendants, to excavate for the purpose of constructing a sunk gasholder tank in which to receive and seal with water a very large telescopic gasholder, intended to rise when fully inflated to over 100ft. above the ground level. The circular trench which the contractors made to build the enclosing well of the tank was only a few feet from the back wall of the nearest cottage. The trench was carried down to a depth of about 36ft., and the work had to be carried through a variety of strata, one of which, designated running silt, was particularly difficult to deal with. This stratum was about 6½ft. thick, and was

immediately followed by a thin layer of soft clay, below that being a firm basis of impermeable gault clay. The plaintiff alleged that cracks on his land and in his cottages had occurred

IN CONSEQUENCE OF SUBSIDENCE

caused by the withdrawal of water and sand in suspension from the running silt bed; and he

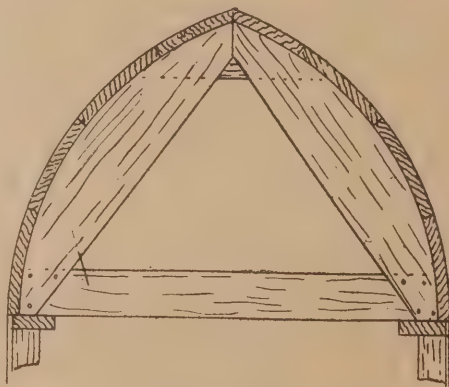


FIG. 82. A "GOTHIC" CENTRE. ELEVATION.



FIG. 83. SECTION.

further alleged that the contractors had not adopted the best known methods of damming back the water and silt during the operation of constructing the tank; in other words, that there had been negligence. A great deal of technical evidence was given on this part of the case as to what the best mode of making an effectual dam is, with the usual contradiction in expert evidence. One question between the parties was whether, on the construction of their own special Acts, coupled with the Incorporated Gas Clauses Acts, the case was within the decision of "*The Metropolitan Asylums Board v. Hill*" (6 Ap. C., 193), in which it was held by the House of Lords that the Asylums Board could be restrained from erecting a smallpox hospital on land bought for the purpose in a residential neighbourhood; or the subsequent decision of the House of Lords in "*The London and Brighton Railway Company v. Truman*" (11 Ap. Ca., 45), in which it was held that the appellant railway company were entitled to use land bought under power to purchase additional land by voluntary agreement for cattle sidings and yards, to the annoyance of the inhabitants of a residential district at Croydon. The defendant company, as to the removal of water and silt, contended that they had a common law right

to remove water, even if in doing so they abstracted matter in solution; and that any damage caused to their neighbours' property thereby was not actionable. It was also contended, as a matter of fact, that the subsidence which took place was due entirely to the abstraction of water alone and no appreciable subsoil had been abstracted. The defendant company also contended that they were given powers for public purposes, coupled with a duty to supply gas, which could only be fulfilled by the construction of the gas holder, and that, apart from the question of negligence in doing the work, they were entitled to interfere, to the extent they had interfered and proposed to interfere, with the rights the plaintiff would otherwise have had.—His Lordship delivered a short judgment on the issues of fact, reserving for consideration the points of law necessary to be decided on those findings. He found that the gasholder, when erected and inflated to the proposed height of over 100ft., must interfere with access of light to the cottages, but that he could not say that that plan of doing the work was improper. He held that the plan adopted had been skilfully carried into execution, and he held that subsidence was due not merely to the abstraction of underground water, but also to the abstraction of silt held in suspension in the water abstracted.

THE main sewerage and sewage disposal works for Pocklington, Yorkshire, have just been completed. The engineers are Messrs. D. Balfour and Son, of Newcastle, and the contractor is Mr. Thomas Bell, of Market Weighton.

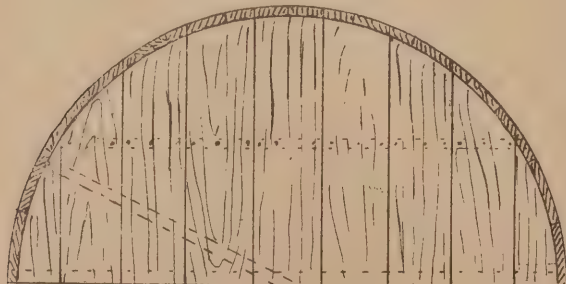


FIG. 84. A COMPOUND CENTRE. ELEVATION.

THE scheme for the improvement and development of Seaham Harbour embraces the practical reconstruction of the docks. It is proposed to enlarge one of the docks to about double its present dimensions, and increase the depth of water at high tide from about 14ft. to 26ft. This will admit steam vessels of the largest class to trade from the port. Plans have been prepared, and estimates drawn up by Mr. H. H. Wake, chief engineer to the River Wear Commissioners at Sunderland. Two new piers are to be built, and a spacious outer harbour formed, with a south-east entrance from the sea. The construction of the new works will, it is thought, occupy about five years.

It is stated that the Government contemplates the appointment of a Royal Commission to investigate the bacterial treatment of sewage. It is high time that we had some authoritative pronouncement on this subject for the guidance of local bodies, and a small commission of experts furnished with power to conduct experiments would greatly help in settling a question which is at present in a most unsatisfactory condition. Local government authorities are frequently considering the various systems. The disposal of sewage is a modern problem of great public importance and urgency, but still so far from solution that expert opinion about it can only be described as chaotic.

Surveying and Sanitary Notes.

FARNBOROUGH DISTRICT COUNCIL has had a great number of letters from military officers and others living in the parish complaining of alleged nuisances upon their premises through the manner in which the contractor employed by the authority carried out his duties. The writers threatened to take immediate action against the Council if the evils were not at once remedied. A minority of the Council urge that a £30,000 drainage scheme be at once started, but the majority are in favour of adopting the septic tank system of sewage disposal, and correspondence is now going on with the Exeter patentees. The chairman, Mr. Blake, moved that the Council absolutely decline to employ any more cesspools in the locality, and tell the officers and others to do the work themselves, as the majority of the Council were quite sick of trying to please them. They would then get a legal decision that would decide once and for ever the question of their liability from a sanitary standpoint. The motion was carried by six votes against four, and the contractor was paid off forthwith.

A CASE of considerable interest was recently heard in the Queen's Bench Division by Mr. Justice Wright. It was that of Barnes v. Seantlebury, and was an action brought by the plaintiff, Mrs. Barnes, against the defendant for damages for breach of an agreement.—The plaintiff, by an agreement dated August, 1896, agreed to take a lease of a house, 5, Orsett Terrace, in the parish of Paddington, belonging to the defendant. The defendant agreed to do certain work to the house, including work to the drains, to the satisfaction of the vestry authorities. An old soil-pipe was to be removed. When the plaintiff entered into possession of the house in September, 1896, smells were at once observed, and shortly afterwards the plaintiff's eldest daughter contracted a sore throat, and was advised by the doctor to leave the house. The plaintiff had the drains examined, and it was then found that the lower end of the soil-pipe had not been removed, and that it was connected with an old lead D-shaped trap, and with 3ft. of brick drain. According to the plaintiff's case, the trap contained a deposit of 3in. thick of sewage matter, and the smells and the illness

of the plaintiff's daughter was attributed to this cause. The agents of the defendant's property were Messrs. Hunter and Hunter, one of whom was a member of the Paddington Vestry. The contractor employed by Messrs. Hunter was also a member of the vestry, and the contractor's son was the sanitary inspector of the district. The work was inspected by the sanitary inspector and was passed. It was suggested on the pleadings that the satisfaction of the sanitary inspector was not properly obtained, but that charge was not persisted in. The defendant's case was that, although under the terms of the contract the whole of the soil-pipe ought to have been removed, yet that no damage had resulted from its remaining in its place. The soil-pipe was not connected with the drainage, and it was contended that the matter found in the trap could have caused neither the smells nor the illness of the plaintiff's daughter.—His Lordship, in delivering judgment, said that there was one matter of importance which did not affect the question in the case, but which called for a remark, and that was the system by which members of a vestry were enabled to work into each other's hands. It appeared that a member of the vestry was employed by the landlord of this house as his agent; the agent employed another member of the vestry, who was a contractor, to do work in the house; and the work was, after its completion, inspected by the contractor's son, who was a sanitary inspector of the vestry. Such a state of things was a reproach to the whole system of local government. His Lordship was of opinion that there was not sufficient evidence that the principal damage complained of by the plaintiff was due to the admitted breach of agreement by the defendant, but he awarded £2 damages in respect of the opening up and removal of the soil-pipe. He awarded costs to the defendant, allowing £10 to the plaintiff in consideration of her having partially succeeded in her action.

THE new sewage works constructed by the Midsomer Norton (Somerset) Urban District Council were recently opened. The process is that of precipitation by chemicals and filtration through artificial beds and land. The sewage on admission to the works passes first through a straining grating, where all coarse matters and foreign bodies are retained, and then through a scum and detritus chamber, which intercepts sand and fatty matters. Next the chemical precipitant (Ferozone) is added, the mixing being done by a "Kierby" machine, the motive power of which is a small water-

wheel worked by a portion of the river water which has been diverted for that purpose. After the precipitant is added, the sewage is passed over a series of iron bafflers, which thoroughly mix the chemical with the sewage, and it then enters the first settling tank. This tank is 16ft. in diameter, and 10ft. 6in. deep, and the sewage enters at the bottom by a series of vertical inlet pipes, and is discharged from the top by means of wood-collecting channels, and it is found that by this method all the solid matters in suspension are retained at the bottom of the tank. This is removed daily by means of an ingenious revolving steel arm, and is run on to prepared and drained sludge lagoons, where it is dried for removal, the thin liquid portion which is drained off being pumped back into the inlet chamber for re-treatment. After leaving this tank the sewage is run through another of similar design and size, and it is believed the present instance is the only one where duplication of tanks has been carried out, the engineer claiming that by means of it a better effluent is produced at a reduced consumption of chemicals. The tanks are so arranged that the sewage can be run through either of them separately, through both equally, or through one after the other. From the settling tanks the sewage effluent is now run on to the filter beds. These are four in number, each 40 square yards in area, and are composed of gravel sand and a patent filtering medium, known as "Magnetite." Either one or more of these beds can be used at the same time, and by an ingenious system of valves the effluent can be sent through any bed or beds and then brought up through any other bed, for the purpose of washing the top sand with the filtrant, and thus effecting a considerable saving of labour in sand washing. Leaving the works, the filtrant is conveyed by a 12in. pipe for a distance of about 600 yards on to the outfall land, situated near Old Welton Colliery. Of this land about four acres have been laid out, channelled, levelled, and under-drained, and, after passing through this, the now purified sewage is discharged into the stream. The engineer for the works is Mr. W. F. Bird, C.E., Surveyor to the District Council; the engineer consulted to report upon Mr. Bird's scheme was Mr. T. S. McCullum, C.E., of Manchester; the contractors for the principal works are Messrs. Thomas and Webb, of Bristol, and, for the Outfall Land Works, Mr. W. A. Catley, of Midsomer Norton; and the clerk of works has been Mr. A. B. Carter.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
March 12	Norwich—Technical Institute...	Corporation ...	A. E. Collins, Guildhall, Norwich.
" 12	Baldon Green, near Shipley, Yorks.—Hotel ...	Bentley's Yorkshire Breweries, Ltd. ...	B. W. Higgins, Architect, Oulton, near Leeds.
" 12	Cloughjordan, Ireland—Schoolroom and Vestry, &c. ...	...	Rev. J. G. Whittaker, The Manse, Cloughjordan.
" 12	Mawgan, Cornwall—Additions to Schools ...	School Board ...	J. W. G. Bartlett, Boscawen, Cury.
" 12	Dorstone, Herefordshire—Additions to Schools ...	...	Nicholson and Hartree, Architect, Hereford.
" 14	Llangarthen, Wales—Stone Bridge over River Towy ...	Carmarthen County Council ...	T. Jones, Clerk, County Council Offices, Llandovery.
" 14	Hastings—Retaining Walls, Fencing, &c. ...	Corporation ...	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
" 14	Salford—Erection of School ...	School Board ...	W. Windsor, 37, Brown-street, Manchester.
" 14	Walsall—Erection of Schools ...	School Board ...	Bailey and McConnal, Architects, Bridge-street, Walsall.
" 14	Braddan, Isle of Man—Additions to Hospital ...	...	T. G. Taylor, C.E., Municipal Offices, Douglas.
" 15	Bewcastle, Cumberland—Erection of 3 Stone Bridges ...	Longton Rural District Council... ..	J. Murray, District Surveyor, Alstonby, Carlisle.
" 15	Ipswich—Enlargement of School ...	School Board ...	T. W. Colman, Architect, Northgate-street, Ipswich.
" 15	Battersea, S.W.—Superstructure of Fire Station ...	London County Council ...	Architect's Department, 13, Spring-gardens, S.W.
" 15	Erdington, near Birmingham—Cottage Homes ...	Guardians of Aston Union ...	J. North, Clerk, Union Offices, Vauxhall-rd., Birmingham.
" 16	Harrow—Erection of Disinfecter Buildings, &c. ...	Urban District Council ...	T. Charles, Surveyor, Harrow.
" 16	London, N.E.—Erection of Boundary Walls, &c. ...	Hackney Union Guardians ...	F. R. Coles, Clerk, Hackney Union, Homerton, N.E.
" 16	London, N.E.—Erection of Technical Workshops ...	Hackney Union Guardians ...	F. R. Coles, Clerk, Hackney Union, Homerton, N.E.
" 17	London, E.—Erection of Schools ...	Guardians of Mile End Old Town ...	C. F. Burden, Architect, Guardians' Offices, Bancroft-rd. E.
" 17	Whipton, near Exeter—Reformatory Buildings ...	County Council ...	E. H. Harbottle, Architect, County-chambers, Exeter.
" 18	King's Norton, Worcs.—Police Station Buildings, &c. ...	County Council ...	H. Rowe, County Surveyor, Worcester.
" 19	Accrington—Erection of School ...	...	H. Ross, Architect, Cannon-street, Accrington.
" 19	Sowerby Bridge, Yorks.—Re-building, &c., 3 Shops, &c. ...	Guardians ...	C. F. L. Horfall and Son, Lord Street-chbrs, Sowerby Bridge.
" 21	Sheffield—Erection of Infirmary Ward ...	...	J. D. Webster, 19, St. James's-street, Sheffield.
" 21	Gretna Green—Enclosure Walls round Cemetery, &c. ...	Guardians ...	— M'Taggart, Gretna Green.
" 22	Brighton—Block of Buildings ...	Rev. B. Mulholland, P.P. ...	H. S. Reed, Parochial Offices, Prince's-street, Brighton.
" 25	Aghadowey, Ireland—Erection of Church ...	Union Guardians ...	J. J. O'Shea, 124, Donegal-street, Belfast.
" 28	Gloucester—Erection of Cottage Homes ...	Union Guardians ...	W. B. Wood, 12, Queen-street, Gloucester.
April 2	Windsor—New Infirmary Buildings ...	Union Guardians ...	Edginton and Summerbell, Architects, Windsor.
No date.	Colchester—Restoration of Church ...	...	C. E. Butcher, 3, Queen-street, Colchester.
"	Coolgardie, Australia—Exhibition Buildings ...	...	International Mining and Industrial Exhibition Committee, Coolgardie, Australia.
"	Harrogate—Erection of Eight Houses ...	Co-operative Society Limited ...	S. Coates, Secretary, Albert-street, Harrogate.
"	Oswestry—Erection of Chapel ...	...	J. D. Mould, Joint Stock Bank-chbrs., King-st., Manchester.
"	Plymouth—Erection of Chimney, &c. ...	...	J. Paton, Borough Engineer, Plymouth.
"	Selby—Erection of Seven Cottages, &c. ...	...	W. Green, Ousegate, Selby.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Whitgift, near Goole—Restoration of Church	St. Marylebone Guardians	Smith, Brodrick, and Lowther, 77, Lowgate, Hull.
"	London, W.—Two Ward Blocks at Workhouse	"	A. Saxon-Snell, 22, Southampton-buildings, W.C.
"	Ryecroft, Yorks.—Erection of Six Houses	"	A. E. Davies, Oldham-road, Ashton.
"	Exminster—Extensions at Asylum	Devon County Asylum Visitors	E. H. Harbottle, Architect, County-chambers, Exeter.
ENGINEERING—			
March 4	Dorstone, Hereford—Carriage Bridge	County Council	H. T. Wakelam, County Surveyor, Shire Hall, Hereford.
" 12	Swansea—Supply of Gas Fittings	School Board	A. W. Halden, Clerk, Board's Offices, Swansea.
" 14	Pembroke—Water Supply Works and Materials	Town Council	F. Beesley and Son, 11, Victoria-street, Westminster.
" 14	Glasgow—Construction of Railways	Glasgow and South-Western Rly. Co.	Engineer, St. Enoch Station, Glasgow.
" 16	Watford—Supply of Generating Plant, Electric Lamps, &c.	Urban District Council	W. C. C. Hawtayne, 20, Bucklersbury, E.C.
" 17	Egremont, Cheshire—Electric Lighting Plant	Wallasey Urban District Council	J. H. Crowther, Engineer, Great Float, near Birkenhead.
" 17	Lowestoft—Construction of Groynes	Town Council	G. Hamby, Borough Engineer, Town Hall, Lowestoft.
" 17	Prestwick, Manchester—Supply of Boiler	Union Guardians	E. W. Ogden, Offices, Cheetham Hill-road, Manchester.
" 22	Blackpool—Supply, &c., of Electrical Plant	Corporation	E. C. Quin, Electrical Engineer, Town Hall, Blackpool.
" 22	Southampton—Supply of Sludge Presses, &c.	Corporation	W. B. G. Bennett, Municipal Offices, Southampton.
" 22	Swinton, near Rotherham—Precipitation Tanks, &c.	Urban District Council	E. Fowler, Engineer, Council Offices, Swinton.
" 24	Buncrana to Carrdonagh, Ireland—Execution of Railway	"	Secretary, Board of Works, Dublin.
" 25	Ipswich—Electric Lighting	Electric Lighting Committee	W. Bantoft, Town Clerk, Town Hall, Ipswich.
April 27	London, S.W.—Electric Search Light Apparatus	Secretary of State for War	A. Major, Director of Army Contracts, War Office, Pall Mall.
July 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
No date.	Bolton—Supply of Six Electrical Clocks	School Board	G. R. Rothwell, Clerk, Board's Offices, Nelson-sq., Bolton.
"	Kettleby Beck, Lindsey—Bridge	"	J. Thropp, 22, Broadgate, Lincoln.
IRON AND STEEL—			
March 12	Dublin—Supply of Ironmongery, &c.	General Prisons Board	Mountjoy Prison, Dublin.
" 14	Barry, Wales—Cast-iron Pipes, &c.	Gas and Water Committee	E. W. Waite, Engineer, Gasworks, Barry.
" 14	London, E.C.—Supply of Steel Tyres	Burma Railways Company Limited	Offices, 76, Gresham-house, Old Broad-street, E.C.
" 14	Birmingham—Iron Castings, Pipes, &c.	"	E. Smith, Secretary, City Gas Offices, Council House.
" 15	London, E.C.—Steel Axles, &c.	"	E. Z. Thornton, 44, Finsbury-circus, E.C.
" 15	Shrewsbury—Supply, &c., of Fencing	Southern Mahratta Railway Co.	W. C. Eddowes, Borough Surveyor, The Square, Shrewsbury.
" 15	Manchester—Supply of Chain, Iron, Water Fittings, &c.	Markets Committee	O. S. Holt, Secretary, London-road Station, Manchester.
" 15	Preston—Supply of Cast-iron Pipes, &c.	Great Central Railway Company	Borough Surveyor, Town Hall, Preston.
" 21	Leigh-on-Sea—Supply of Cast-iron Water Pipes, &c.	Corporation	J. Mansergh, 5, Victoria-street, S.W.
" 21	Langport—Supply of Cast-iron Water Mains, &c.	Urban District Council	E. Q. Louch, Clerk, Langport, Somerset.
PAINTING AND PLUMBING—			
March 14	Barry, Wales—Supply of Lead Pipes and Sheet, &c.	Gas and Water Committee	E. W. Waite, Waterworks Engineer, Gasworks, Barry.
" 14	Birmingham—Painting Parish Offices	Guardians	W. H. Ward, Architect, Paradise-street, Birmingham.
" 19	Stafford—Re-painting County Asylum	Visiting Committee	W. H. Cheadle, County Surveyor, Stafford.
" 21	London, S.E.—Painting, &c., Works	London County Council	Architect's Department, County Hall, Spring-gardens, S.W.
ROADS—			
March 12	Billesdon, Leicester—Cartage of Granite	Rural District Council	W. E. Richardson, 18, New-street, Leicester.
" 12	Swindon—Supply of Road Stone, &c.	Urban District Council	H. J. Hamp, Public Offices, Swindon.
" 12	Billesdon, Leicester—Supply of Broken Granite	Rural District Council	W. E. Richardson, 18, New-street, Leicester.
" 12	Gosforth—Asphalting, Paving, Kerbing, &c.	Urban District Council	C. J. Baff, Surveyor, Council-chambers, Gosforth.
" 12	Hexham—Street Improvement Works	Urban District Council	E. T. Surtees, Surveyor, Priestpope, Hexham.
" 14	St. Thomas, nr Exeter—Supply & Haulage of Materials, &c.	Rural District Council	A. E. Ward, 9, Bedford-circus, Exeter.
" 14	London, N.—Supply of Road Materials, &c.	Hornsey Urban District Council	E. J. Lovegrove, Engineer, Southwood-lane, Highgate, N.
" 14	Wimbledon—Supply of Road Materials, &c.	Urban District Council	W. H. Whitfield, Council's Offices, The Broadway, Wimbledon.
" 14	Conway—Repaving Bridge	Bridge and Harbour Commissioners	T. B. Farrington, Engineer, Municipal-buildings, Conway.
" 14	Eastbourne—Supply of Granite, &c.	Town Council	E. M. Glyne, Borough Engineer, Town Hall, Eastbourne.
" 14	Godalming—Road Works	Urban District Council	S. Welman, Church-street, Godalming.
" 14	Wimbeldon—Making-up Roads	Urban District Council	Surveyor's Office, The Broadway, Wimbeldon.
" 15	Annan, N.B.—Supply of Road Metal	Commissioners	A. Tweedie, Borough Surveyor, Town Hall, Annan.
" 15	Biggleswade—Remaking Footways	Urban District Council	J. O. Jones, Council's Surveyor, Biggleswade.
" 15	Littleborough, Lancs.—Supply of Flags, Kerb, &c.	Urban District Council	G. H. Wild, Clerk, Council Offices, Hare Hill-rd., Littleboro'.
" 15	Derby—Supply of Gravel, Granite, &c.	Council	Borough Surveyor, Babington-lane, Derby.
" 16	London, S.W.—Cartage of Granite and Gravel	Middlesex County Council	F. H. Pownall, County Surveyor, Guildhall, Westminster.
" 16	London, S.W.—Supply of Broken Granite	Middlesex County Council	F. H. Pownall, County Surveyor, Guildhall, Westminster.
" 16	St. Helens, Lancs.—Supply of Granite Setts, &c.	Corporation	G. J. C. Broom, Borough Engineer, Town Hall, St. Helens.
" 16	Croydon—Making-up, &c., Road	Rural District Council	J. Wilson, Clerk, Town Hall, Fell-road, Croydon.
" 16	Strood—Supply of Materials, Carting, &c.	Rural District Council	G. W. Prall, Clerk, Workhouse, Strood.
" 16	London, W.C.—Supply of Gravel, Ballast, &c.	St. Giles' Board of Works	G. Wallis, 197, High Holborn, W.C.
" 16	London, S.W.—Making-up, &c., Road	Fulham Vestry	C. Botterill, Town Hall, Walham Green, S.W.
" 17	Coventry—Supply of Granite Setts, Kerb, &c.	General Works Committee	J. E. Swindlehurst, City Engineer, St. Mary's Hall, Coventry.
" 17	Long Sutton, Lincs.—Supply of Broken Granite & Slag	Urban District Council	S. S. Mossop, Clerk, Long Sutton.
" 19	Talgarth, Brecon—Construction of New Road	Asylum Visiting Committee	Giles, Gough, & Trollope, 28, Craven-st., Charing Cross, W.C.
" 19	Charley, Sussex—Supply of Flints and Cartage	Rural District Council	J. Miles, 173, High-street, Lewes.
" 19	York—Supply of Stone Kerbing, Flagging, &c.	Corporation	A. Creer, City Engineer, Guildhall, York.
" 21	Bacup, Lancs.—Supply of Setts, Flagging, &c.	Corporation	Wilson, Borough Surveyor, Bacup.
" 21	London, N.—Supply of Road Materials	Finchley Urban District Council	C. Roberts, Clerk, Church End, Finchley.
" 22	Southampton—Street Works	Corporation	W. B. G. Bennett, Municipal Offices, Southampton.
" 24	Aston Manor, Birmingham—Paving, Kerbing, &c.	Urban District Council	H. Richardson, Engineer, Council House, Aston Manor.
" 24	Downham Market, Norfolk—Supply of Granite, &c.	Rural District Council	T. L. Reed, Clerk, Downham Market.
" 24	Eccles, Lancs.—Supply of Flags, Kerbs, &c.	Highway Committee	A. C. Turley, Borough Surveyor, Town Hall, Eccles.
" 24	Reading—Supply of Granite, Setts, &c.	Corporation	J. Bowen, Borough Engineer, Town Hall, Reading.
" 25	Newark—Supply of Granite and Slag	Rural District Council	T. Vickers, District Surveyor, Lincoln-street, Newark.
" 26	Sleaford, Lincs.—Supply of Broken Granite	Urban District Council	E. Clements, Clerk, Council Offices, Sleaford.
No date.	Church Stretton, Salop—Construction of Roads	Land Company Limited	S. H. Horton, Effingham House, Arundel-st., Strand, W.C.
"	Kendal—Kerbing, Channelling, &c.	Wakefield, Millward and others	J. Hutton, Architect, Kendal.
"	Hasland—New Roads and Streets	"	W. C. Jackson, 29, Knivesmith-gate, Chesterfield.
SANITARY—			
March 12	Broadstairs—Construction of Sewers	Urban District Council	H. Law and Son, 17, Victoria-street, Westminster, S.W.
" 14	Tipperary, Ireland—Construction of Sanitary Works	Union Guardians	J. Gibbins, Clerk, Workhouse, Tipperary.
" 14	Warrington—Supply of Pipes, &c.	Water Committee	J. Deas, Water Engineer, Municipal Offices, Warrington.
" 14	Hastings—Drain, Manshafts, &c.	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
" 15	Motherwell, Scotland—Removal of Manure, &c.	Commissioners	Burgh Engineer, Town Hall, Motherwell.
" 15	Bebington, Cheshire—Construction of Sewer	Urban District Council	J. Young, 13, New Chester-road, New Ferry.
" 17	Burnley—Construction of Sewers, &c.	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
" 17	London, N.W.—Construction of Sewers, &c.	Hendon Rural District Council	J. A. Webb, Council's Engineer, Great Stanmore, Middlesex.
" 17	Rotherham—Construction of Outfall Works, &c.	Rural District Council	B. Godfrey, 29a, High-street, Rotherham.
" 18	Walsall—Sewage Works	Corporation	R. H. Middleton, Borough Surveyor, Bridge-street, Walsall.
" 21	Pokedown, Hants.—Outfall Sewers, &c.	Urban District Council	E. W. Ingamells, Council Offices, Pokedown, Hants.
" 21	Wakefield—Construction of Sewers	Corporation	R. Porter, City Engineer, Town Hall, Wakefield.
" 23	Malling—Drainage of Workhouse Premises	Guardians	J. Ladds, 7, Doughty-street, Mecklenburgh-square, W.C.
" 23	Brampton Bryan, Salop—Culvert	Wigmore Rural District Council	H. W. Bowen, Surveyor, Wigmore.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
March 31	Winchester—Designs, &c., for Public Baths	£25, £15	Town Council.
May 1	Belper—Sewage Disposal Schemes	£52 10s., £26 5s.	Urban District Council.
" 31	Singapore—Designs for Town Hall	£200, £100	Major F. L. Anderson, R.E., South Camp, Aldershot.
July 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Borough Council.
No date.	Linlithgow—Designs for County Offices	£31 10s., £15 15s.	Linlithgowshire County Council.

ON THE TRAINING OF ARCHITECTURAL STUDENTS.*

BY FRANCIS H. NEWBERRY,

Head Master, The Glasgow School of Art.

"DRAWING may be taught by tutors, but design only by Heaven." So says John Ruskin, a writer whose thoughts I shall have occasion more than once to call to my assistance; but like other phrases coined by that aphorist in art, the sophistry of its meaning separates human execution too widely from human ambition—what we do from what we desire; and I would suggest that the sentence would read much better if it had in addition, the wholesome and cheering proverb, "Heaven helps them that help themselves." Genius or inspiration, when its existence is proved as belonging to any one man or work, may or may not be a Heaven-sent gift; but, believe me, study and practice go much further than is commonly supposed towards developing the latent powers of a man, else would genius knock in vain for admission, or, if the door be opened, be greeted as a stranger. How best, then, to cultivate the powers that belong to any ordinarily-endowed architectural student, so that he may, if not excel his fellows, take at least a position which may have

THE CREDIT OF A RESPECTABLE MEDIOCRITY,

and, leaving genius out of the question, educate him so that he may know what he has to do and do it, is my object to show. There comes a point in the education of every earnest man when teaching, as such, becomes practically useless and guidance even may be at fault. Up to that point I would go, and patent to the subject of this paper, would venture to indicate how to me the artist in the architect may be developed, leaving to others the task of dealing with the technical workman and knowledge of an architect's business. This division I make empirical. Architecture is a fine Art whose appeal to ourselves is made through the medium of building. "To build is, by common understanding, to put together and adjust the several pieces of any edifice or receptacle of a considerable size, and building does not become Architecture merely by the stability of what it erects. Architecture is the Art which so disposes and adorns

THE EDIFICES RAISED BY MAN,

for whatsoever uses, that the sight of them contribute to his mental health, power, and pleasure." Ruskin here makes a sharp division between building, as such, and Architecture, which may be co-existent with it, and adds a corollary, that if, as goes in the saying, the architect be the artist, then in common with him he is divisible so to speak into two men—the designer whose brain conceives and the workman whose hands execute. With the first man we have to do. Now, let us take the education usually afforded to an architectural student outside the educative influence of his master's office. (1.) A course of building construction of the book order, generally and chiefly given less with a view to the cultivation of a knowledge in the student than with the object of filling him with a superficiality which shall enable him to pass certain examinations. In it he digs

FOUNDATIONS WITH IMAGINARY SPADES

to unknown depths, piles ethereal brick on brick till his shadowy walls eclipse Babel's fabled height, covers this with a roof as vague as the empyrean blue, and having completed an edifice, whose inhabitants would find their chief safety to lie in the living outside, rather than inside its sheltering walls, the student sits down wonderstruck with the result of his efforts and in the possession of—a certificate. He is then in a position to pass on to (2.) a study of the orders; likewise learnt from paper. By these means he gathers the informa-

tion that the Greeks were eminently a mathematical race; that their edifices were composed chiefly of compasses and set squares; that they put two on three and five became a thing of unutterable beauty; and the Parthenon, which, he may perchance be dogmatically informed, was a temple of exquisite proportions, appeals to him as a huge arithmetical sum whose decorations consisted chiefly of entablatures, modules, triglyphs, and diameters. He next passes on to the third and final stage, whereby his education is to be thoroughly completed—namely, design. This is too vast a field of opportunities to him for me to safely follow. It usually commences with a cathedral and ends with his waking up to the stern reality of every-day requirements. This description may be an exaggeration of the real faults, but the recognition of faults is half their amendment, and it will well serve its purpose if it show the fallacy of such

A SYSTEM OF PAPER INSTRUCTION.

You will notice that in it nowhere is the artist considered. The workman everywhere predominates. Not an appeal to the principles of the past varies its monotony, or a ray of light from the spirit of the great works which still cover our earth enlightens its darkness. That an architect must learn construction must be conceded at the very issue, but whilst learning in the present how to construct a house for the future, he need not neglect the study of how buildings were constructed in the past; and the same treatment of his subject applies to every phase of his studies. The letter of the Greek must be obeyed before one can catch a breath of the spirit which animates a classic building, and the design which is to be, must be developed from a knowledge and acceptance of what already exists. But this brings the student at once into a clearer light, and into a field as vast as the world is old, a light which enables him to read and compare the lessons which past experience, as manifested in architectural structures, is ever inculcating, and a field which

STIRS THE CREATIVE FACULTY

in him to emulate, before endeavouring to surpass, that which the efforts of dead minds have created. An Art student should learn his lines by analogy, not by imagination, his proportions not by creation but by comparison, and his masses not by indication but by imitation, and he should become the artist not in spite of, but because of his education. Let the architectural student do the same, and a like result should follow. This last paragraph gives the three heads into which I would divide the education of the architect, namely, Line, Proportion, and Mass. I should state, however, that, for my own part, I fail to see the slightest reason why he should be treated differently from an ordinary Art student, but as it is felt that he should always work in close alliance with his subject, I will accept such a view, if for no other reason than to prove that the artist can be got out of him as well by these means as by any other means. Coming, therefore, to

LINE,

visions of plans, elevations, sections, enlarged details, perspectives, &c., rise to view. Banish them at once. Their lines represent no more the ideas of an architect than do the words of a language the thoughts of a poet. The lines I allude to lie in other places and on higher levels, and are not of a necessity made by a pen. A certain chimney-stack of this city, we are informed, rises into the air as high as the spire of Strasburg Cathedral; yet who would turn for an instant from the contemplation of the living lines of that or any other cathedral spire to look upon the ruled contour of the highest chimney stalk the world possesses. The elliptical lines of the Parthenon fascinate us by their appeal to our sense of the beautiful equally as the lines of a railway bridge over a river repel us by their incarnation of the ugly. Yet both are lines, and, to come to details, the segmental curve of a Roman moulding can never satisfy us as does the freehand sweep of a Greek ovolo, or the flying line of a Gothic buttress. How,

then, is our student to obtain the power of drawing a line, and to cultivate

THE SENSE OF BEAUTY IN LINE?

Why, I should say, by not—as is usually the case—beginning at the wrong end, and accepting results without due regard to means. Let us take our student powerless to draw anything, or to express a single idea by means of his pencil. What should he do first? Certainly not draw lines by means of a T square, nor obtain their measurements by the use of compasses. I know I strike here at the root of the system usually followed. But the architectural student has this in common with all other Art students, namely, that his education, like theirs, should be of a kind that should develop two great innate qualities, namely, the power of the hand to draw a line, and the power of the eye to rightly compare or apportion its length. And yet he has to do this by drawing a line parallel to another line, and by blinding his eyes with a foot rule! He is drawing plans and elevations—surely a part of his education. Granted; but we see objects seldom either in plan or elevation, but always

AS FACTS IN PERSPECTIVE;

rarely do we conventionally see them, but always naturally. Take a common example, namely, a drawing in elevation of three or four flooring boards, supported on a joist as usually found in works on building construction. Now, you must have a design of this nature to make what is called a working drawing; but as we do not, as a rule, exist with our heads wedged in between the joists of a floor, but with our feet standing upon the floor, it occurs to me that our student would receive a far more valuable accession of knowledge were he taught first to realise things as they are, and as they really exist, rather than as they appear in the conventional rendering of a workman's drawing. Let him therefore be taught to draw flooring boards as he sees them when walking across them every day, and then analyse their technical construction afterwards. But this entails a knowledge of perspective. Certainly. Why not? To realise facts and not experiences should ever be the aim of all Art education, and a student should learn what is required of him by a necessity which is ever the mother of invention. It were needless for me to multiply examples of this nature. They occur in a house, from the sleeper walls to the ridge-piece, from the footing to the chimney-pot, and I would submit that even only for the mere exigencies of time the student should rather be taught to make a freehand drawing which should realise this object, than a plan and elevation which should give its mathematical measurements. Let us then return to our student, whom we have left anxiously awaiting his fate at our hands, and tell him to

PUT ASIDE HIS COMPASSES AND T-SQUARE

and learn how to draw, or, put more practically, to learn how to realise the facts of the appearance of any object placed before him, but in so doing never to forget that he is to be artist in the architect. No royal road lies here. He may be a Michael Angelo in embryo, for power of design, or a Palladio in similarity of adaptation, but, like them, he must learn that before he can design a dome he must be able to draw a dome, or to rightly impose an order, must train his eye to see the ordered beauties of proportion in an order. It seems to me to matter little at first what the student is set to draw, but as in my premises I granted that he may be confined to his subject, let him draw from good examples of architectural ornament and work, common enough in all well-equipped schools or classes. Taking classic details at first, whose beauty, as that of all good work, consists in their simplicity, and passing on from these to Gothic, where fancy broke through ordered rules and left the architect with a freer if not so learned a pencil, I would have him draw with pencil, pen, and sepia, from fillet to temple, and from Gothic leaf to cathedral, not as studies merely to enable him to have a command over his pencil, but, under instruction,

* A paper read before the Architectural Section of the Glasgow Philosophical Society.

seeking out and comparing their hidden beauties and subtle boundaries, till he realises what is meant by the power of a line which is neither crooked nor straight, arched nor horizontal, and the beauty of a proportion untrammelled by rules and yet capable of the highest mathematical exactness. This may sound impractical, and the question may be asked—Is the period which a student can devote to his education long enough for all this? I reply, yes; for all this and much more, for I am training my man; he will educate himself. All this need not be done at school or during any so-called period of education. To cultivate his powers of perception and selection, to heighten his sense of beauty, and to make him work, is all I want. The rest can safely be left to take care of itself. He will find out sooner or later by these means wherein his chief powers lie, and, if his education end with his life, it will be because he realises its necessity. I would have no rule, or set of rules, even if such were possible, to make the student an architect, "but arouse his sympathy and stir up his imagination, and he may after that be neither feeble in life nor forgotten in death." So says John Ruskin, helping heaven to realise the architect in the man. Of one thing we may be quite certain, that this proposed course of education will have made

THE STUDENT ABLE TO DRAW,

and that being done a part of the battle is won, and we shall have realised the first half of Mr. Ruskin's aphorism, "Drawing may be taught by tutors." We will try whether we cannot meet heaven half way on the second part. Now, you can arm a soldier, but you cannot make him fight. You can, however, show him how, and the providing him with arms is an absolutely indispensable part of this latter proceeding. An architect unable to draw, not with mathematical instruments, which I do not consider the true architect's properties, but with a pencil, is like a soldier starting to do battle without the previous provision of offensive and defensive armour. Both are useless for real work. I stated in my opening sentences that "there comes a point in the education of every earnest man when teaching, as such, becomes practically useless." Naturally, I do not consider that point to be reached when a student has been taught simply how to draw. Instead, however, of walking before our student, our proper place is now at his side, I think, and having made sure of his hand and eye let us turn our attention to the training of his ideas; and this brings us naturally to the second of the three divisions I have employed, namely

PROPORTION.

I should vastly have preferred that the student gained his first rudiments of knowledge in this illimitable field by a study of the figure alone, but I choose rather to come point blank to his subject, and put him through a course of what is generically known as the orders, and make him study the figure at the same time. This I do, for in Egyptian Architecture the canon of proportion was based upon that of a conventional figure; in Greek we never can rightly dissociate Greek Architecture from Greek sculpture; and only in Gothic do we have the proportions of Architecture disconnected from a consideration of the human figure.

(To be continued.)

The first bridges built were of wood, and the earliest of which we have any account was built in Rome fifty-five years before the birth of Christ. The next was erected by Julius Cæsar for the passage of his army across the Rhine. Trajan's great bridge over the Danube, 4770ft. long, was made of timber, with stone piers. The Romans also built the first stone bridge, which crossed the Tiber. Suspension bridges are of remote origin. A Chinese one, mentioned by Kirchen, was made of chains, supporting a road 830ft. in length, was built in A.D. 65, and is still to be seen. The first large iron bridge was erected over the Severn in 1777.

LEADWORK: PLAIN AND DECORATIVE.

(Continued from page 66.)

MR. SETH SMITH, commenting upon Mr. F. W. Troup's paper on the above subject, read before the Architectural Association, and which appeared in our last issue, said ever since he had the advantage of seeing Mr. Lethaby's excellent little manual on leadwork he had taken more interest in the subject. They knew that many of the old houses about the country had been treated very largely in leadwork, and not only in regard to the house itself, but also in the garden, where ornamental leadwork was employed. Mr. Troup had let them into a good many of the secrets of the success of this kind of work, and had shown how it could be done in a simpler way, so as to be more adaptable to present-day opportunities. They had had a delightful demonstration of how to carry out rain-water heads, ridges, and crockets in lead. How often they had to omit these things on the score of expense! On the other hand, there were occasions when they could do a little of this class of work, but a demonstration of this kind should re-stimulate their determination to do all they could to encourage their clients more in the use of such beautiful decorative work as could be obtained by the use of lead.—Mr. Matthew Garbutt said

LEAD, AS AN ARTISTIC MATERIAL,

was one of the many revivals they had seen recently. He would confess that until a short while ago he did not know what was done in the past in the production of beautiful leadwork. He had been rather surprised to find that even in London they had some admirable samples. He found that the statue in Queen's Square, Bloomsbury, was in lead. He daresay a good many viewed it, from a short distance, without realising what it was made of. He did not know whether it was cast or hammered work. Mr. Troup had said that cast-lead work stood the heat, in sinks and that sort of work, without so much buckling as they got with milled lead. Perhaps it was because some old ornamental things that had been cast did not appear to sag so much under the sun as the modern work did. He was certainly surprised that some work in gardens was so little distorted after bearing the sun's of many summers. With regard to colour, the grey patina seen in old lead was very striking, and he thought it was extremely likely, as the lecturer stated, that it was due to a small amount of silver. It was well known that bronze, especially that used by the Japanese, contained a good deal of silver, with the result that they got an extremely fine, grey patina; but the fine, rich, purple bronze depended upon the quantity of gold in the alloy. It was perfectly new to him to hear that they put colour on lead. They found coloured Architecture of ancient history, but it was interesting to hear that lead could be treated as a ground for colour work. Mr. Troup had spoken of soldering leadwork together as being equivalent to welded ironwork. With the latter system they had two of the same kind of materials, and they beat them together till they became practically one; whereas, when they soldered the joints, they were using a different material, which

MELTED AT A LOWER TEMPERATURE

than the metal they were soldering. Thus, to him, it seemed the joint was a point of weakness to a certain extent as compared with ironwork. He also considered that soldering was stiffer, and therefore helped to produce the cracks in the work upon which it was used.—Mr. Henry Longden pointed out that formerly lead mines were largely worked in South Yorkshire and Derbyshire, and stated that the lead used by the French, at the time stated by the lecturer, came from there. A very interesting discovery was made last year, when a pig of lead was found with

the Roman mark, by which it was traced to about the second century. The lead in Derbyshire was worked until within his recollection, but now it had practically died out. He believed what had been said about silver in old lead making it better was true. Of course, in the modern process the silver was extracted, but he believed silver in lead had something to do with the excellence of the old work. At St. Paul's Cathedral he believed they used the old lead, and melted it over and over again, though he supposed they put in a little fresh each time. As to the application of colour to leadwork, he thought he had seen some of Mr. Troup's drawings of such work in St. John's College, Oxford. It was a beautiful example of the work, and it was a thing that should be more extensively used than it was now.—Mr. A. T. Bolton observed that although plumbers treated leadwork in an interesting manner, architects seemed to leave it at the fag end of the specification; but now it seemed to be coming to the front again. He remembered that a pupil once came into the office where he was and said he had seen in London

SOME FINE LEAD CISTERNS,

but they regarded the idea as absurd. Of course, it was perfectly true, and now, in some of the old areas in Bloomsbury, could be seen some excellent lead cisterns with pattern work wrought in the relief. As to the making of lead rain-water heads, the difficulty was the expense. So few jobs could afford to have seven or eight pounds spent upon heads, but he thought architects might do more in the way of using lead pipes, which would last a hundred years, while iron would not last for more than twenty-five. But there was one point about lead pipes to remember, not to have the hydraulic. Plumbers on the job always wanted them made that way, but they must insist upon having them cast, because it made a difference in the wear and the colour, and he believed it was a cheaper way too. A year or two ago he spent some time in a country village, and there he noticed old lead pipes on which the bands were very much closer together than in modern work, being only about 4ft. 6in. apart, whereas now they had from 6ft. to 10ft. pipes. If not very careful, under such conditions, with lead bands they were nearly certain to make the mouldings too big. Another use for lead was that which he believed was often adopted by Mr. Bodley, namely, for stars and badges. It was cheap and looked very much better than painting, in fact, from below looked like painting. Then lead was very useful to form the inlay. In conclusion the speaker referred to the extraordinary knowledge of leadwork possessed by Burgess, and pointed out that it was gained by a very close study.—The Chairman (Mr. Pratt) said it had always been a question with him as to whether, in the treatment of lead, it was better to be

CAST OR HAMMERED.

He must say he had inclined to the idea that the proper treatment was beating rather than casting it. But he thought, from what Mr. Troup had shown and told them, there was a great advantage in cast leadwork. He was greatly interested in the example of cast coloured leadwork. In the course of his travels he had never come across any colour decoration in lead, and should really like to see a good sample of it. It was a sort of thing no one would have thought possible; or, at any rate, would not have thought it permanent, and he still had a doubt in his mind as to whether it was possible to apply the colour in such a way as it could be seen from a distance. On a lead font or some near work he should think it was a very satisfactory way of getting a little colour on it. Some of the best examples of ornamental leadwork were to be found on fonts and on the much humbler thing they called cisterns. There were some excellent lead cisterns in existence, but he had never been able to make up his mind whether they were cast or not. With regard to the common and everyday use of lead, one of the difficulties to the architect was to distinguish the quality. He supposed

the merchant and the builder knew it by the mark in the corner of the sheet, but unless they were pretty good judges of material it was very difficult to know what they were dealing with. In pipes, perhaps, more than in sheet lead, they came across

SOME VERY BAD SPECIMENS.

He hoped, however, the quality in the material was not deteriorating in that respect, as the possibilities in leadwork were much greater than in the past. — Mr. Troup, in responding to the vote of thanks, said he should think the statue in Queen's Square was in cast lead. It was always possible with such a material to cast the figure in parts, and solder them together, and it would be easier to join the parts of a lead statue than a bronze one. As a rule they were cast in exactly the same manner as the bronze. With reference to the remarks upon soldered joints, he regarded such joints as an opportunity of strengthening the article, simply because the solder was harder than the lead. No doubt there were certain situations where it was dangerous to solder a joint, on account of the strain put upon the metal in contraction and expansion, but on rain-water heads, for instance, it usually gave strength. There was another method of joining lead, and that was lead-burning, but it was a very difficult process, and required a great deal of skill and dexterity on the part of the workman. But it was a very beautiful method when it could be used. The real difficulty of lead-burning was in vertical work, for the workman had to know exactly when to stop the heat of the blow-pipe so as to melt the edges together, and yet not have a little piece of lead drop out so as to leave a hole between the two sheets. The difference between making lead rain-water heads, instead of iron, was that they could cast the lead in the flat, and it was

A VERY SIMPLE PROCESS.

for with lead cast in that way they could beat it up into anything they wanted and solder it together. If they followed the old method of moulding lead, they would find that it was only at the latter end of the last century they got the great working moulding, which really looked like some other material. They were never cast, but nearly always beaten out on a wooden block. To inlay upon lead was an old method with ornamental leadwork, was very easily accomplished, and was frequently used on the roofs of French houses. Then there was the method of putting tin ornament on lead. They covered it with plumbers' soiling, and obliterated the parts to be tinned, leaving the soil to keep the tin off the surrounding lead. There was another way which, he believed, was practised at Hatfield House, and that was by pasting a piece of brown paper in the shape of the groundwork and cutting out the spaces, exactly as they would use a stencil-plate on a wall. Of course the paper burnt during the process, but held it long enough to keep the tin away from the lead they did not want to cover. He thought nearly all lead cisterns were cast, and some of them in very high relief. As to the quality of lead, the sheet was often much inferior to the good pig material. Bad lead would sometimes not cast in a sheet at all, but run into holes, and sometimes, when it did cast, it turned out to be so hard that it could not be worked. So for casting sheet lead it was necessary to use very good material.

THE Yarmouth Town Council has withdrawn the proposal to spend £70,000 on the erection of a new pier on the Jetty site, with pavilion, swimming baths, shop, and arcades. It is now proposed to erect a new pier altogether.

THE fine old church of Black Torrington, Devonshire, is in an extremely bad state—roof in danger of falling, walls bulging out, and woodwork rotting away from age and damp. A committee has been formed for the purpose of raising £1200 for the restoration, re-roofing, and other necessary repairs. The present rector has undertaken to restore the chancel at his own expense at a cost of £400, provided the sum required for the other portion of the restoration can be raised.

Professional Items.

ABERDEEN.—The Finance Committee of the Town Council have approved of a feuing plan prepared by the city architect in connection with the property of Dee Village, recently acquired by the Town Council. The plan shows Milburn Street and Wellington Road widened to 50ft., and Dee Village Road to 40ft., with a row of houses fronting each of these streets, and also Crown Street.

BIRMINGHAM.—Plans have been passed for the erection of an entertainment hall, adjoining the Assembly Rooms, and it will be 114ft. long by 94ft. wide, the floor being sunk below Inge Street to the basement level, and so arranged that the centre may be used as a circus arena. The stage, 36ft. wide by 26ft. high and 16ft. deep, will face Inge Street side, and in addition to a spacious promenade running completely round the floor, there will be a balcony extending along three sides of the building, and terminating close to the proscenium. There will be three entrances in Inge Street and another—by means of a basement corridor running under the Assembly Rooms—from Hurst Street. The floor is to be so constructed that, if necessary, the circus base may be instantaneously lowered and filled with water, as is done at the Tower Circus, at Blackpool. The building will be of red brick and terra-cotta, and the design in keeping with the style of the Assembly Rooms; whilst the internal decorations and fittings will be of elegant character. The architect is Mr. F. W. Lloyd, of Birmingham.

BOURNE.—The chancel of Bourne Abbey Church has been re-opened. Mr. J. C. Traylen, Stamford, was the architect. The chancel was not part of the original building, being a solidly ugly utilitarian post Reformation addendum. The depressing features have been redeemed by the light and beautiful painting of the roof, by a thorough interior renovation, by the addition of oak choir stalls and carved screen, and handsome furniture. The screen is a fine specimen of English oak tracery work, and it bears emblems of the four evangelists. The builders' work has been carried out by Messrs. Roberts Brothers, Stamford.

DUNDEE.—The public washhouses in Guthrie Street, the first of a series of such conveniences which the Town Council of Dundee propose to erect in various districts of the city, were opened recently. The building is situated immediately to the north and adjoining the public baths in Guthrie Street. The entrance is to the west of the door of the baths, access being gained to the washhouse by means of a sloping corridor. By this arrangement the office is situated between the entrances to the two departments, so that the clerk is able to attend to both at the same time. The washhouse is a lofty chamber, measuring 57ft. in length and 45ft. in breadth, and, like the corridor, is paved with granolithic. The roof is supported on elegant iron couples, and the whole chamber is lighted by eight roof lights and a large window in the gable facing Horsecwater Wynd. Washing is carried on in twenty-four stalls, arranged in four transverse lines, with a large drying chamber between each two rows. The stalls are 6ft. long and 5ft. broad, and are separated from each other by iron partitions 5ft. 6in. high. The designs were prepared by Mr. Mackison, the Burgh engineer, and the heating arrangements have had the attention of Mr. Walter M'Gregor, superintendent of the Baths. Mr. Allen acted as clerk of works. The cost of the establishment has been £1700, and the principal contractors were: Mason, David Crichton; joiners, Gove and Cameron; slaters, Ramsay and Reid; plumbers, John Crichton and Sons; plaster and granolithic work, Reoch and Kilgour; painters, Petrie and Greig; iron work, John Jack; engineers, Cooper and Greig; mangles and wringers, G. H. Nicholl and Co.

EXMOUTH.—The new church of All Saints, in the parish of Withycombe Raleigh, Exmouth, in style is Gothic, and built of limestone with Bath-stone dressings. It consists of chancel, nave, side aisles, transepts, side chapel, baptistery, organ loft, clergy and choir vestries, and holds seating accommodation for 700 persons. On each side of the altar are inscriptions perpetuating the memory of the Perring family.

HARWICH.—Dovercourt Church has just been re-opened, after restoration. The edifice is an ancient building of brick and rubble of the twelfth century. The architects for the restoration were Messrs. J. E. K. and J. P. Cutts. During the progress of the work several old and interesting architectural features have been brought to light. In the chancel it was found that the windows had at some period been altered in shape and design. Two small windows, east of the old chancel-screen, have been opened, having been only roughly filled in at the beginning of the present century. Whether these windows are leper windows, confessionals, or openings from which the Sanctus bell was rung, is still an undecided point with archaeologists. Just west of the chancel arch is another peculiar low window, which also was blocked up about 1811, and has now been re-opened. This may very possibly have had something to do with the rood which stood above it. Close to this window there is a piscina, pointing to the fact that there was an altar outside the screen as well as the one in the chancel. Immediately opposite, in the north wall, are the old stone steps leading to the rood-loft; and further down the church, one on either side, are the stone quoins of two Norman windows. There is an oak "poorman's box," bearing the date 1569, with two locks and two keys. With regard to the extent of the renovation, the roof has been re-tiled, and the stone gable and cross at the east end renewed. The ceiling has been removed, and the old oak timbers of the roof uncovered. A false wall of lath and plaster, which ran the whole length of the church, from east to west on both sides of the interior, has been removed. Three new windows have been opened up and filled with stained glass. The old stone steps leading up in the thickness of the wall to the rood-screen have been revealed, and the stone quoins of the windows have been restored. The porch has been re-roofed and also the vestry, and the only thing that now remains to be done is the refacing of the old tower.

HONINGHAM.—The Church of Honingham has undergone very complete restoration, the work having been carried out by the Hon. A. E. Fellowes, M.P., as a memorial of the Jubilee of the Queen. In the chancel a new oak roof of pretty design has been placed, the reredos has been heightened, and a new dais has been erected, while the walls have been coloured. In the nave the roof and walls have been coloured, and round the latter a dark dado has been painted. The whole church has been refloored, tiles being placed in the passages and wood blocks elsewhere. The old-fashioned deal seats have been replaced by open oak benches, but a few of the old benches have been retained. The steps of the pulpit have been remodelled, and a new heating apparatus has been supplied. The walls of the tower have been thoroughly repaired, and the lower portion of the structure has been converted into a choir vestry, while above an oak floor has been placed for the ringers. The porch, too, has been repaired, and the stonework and roof of the vestry have received attention. A new organ has been erected by Messrs. Norman and Beard, of Norwich. The restoration work has been carried out by Mr. Chapman, of Hanworth, under the direction of Mr. Herbert J. Green, architect, of Norwich.

IBSTOCK.—The Church of St. Denys, Ibstock, has been reopened after restoration of the chancel. The improvements effected are complementary to the restoration of the nave and wings undertaken and accomplished a few years ago. The alterations to the chancel include a new roof, floor, and eastern window;

four old windows that had been bricked up for 250 years have been opened out and renovated, and two leper windows have been restored. An organ chamber and a new vestry have been built, and the whole of the outside of the chancel has been re-pointed. Amongst other improvements are new choir stalls and altar rails. Mr. T. A. Wileman, Ibstock, was the builder.

LIVERPOOL.—A public hall is to be erected on a site in West Derby Road just beyond Emmanuel Church. The hall is to be handsomely decorated in Lombardic style. The material will be red brick, with terra-cotta dressings. The hall is to accommodate 6000 persons in the body, with 1000 on the stage. There will be ample means of egress—sufficient, in fact, to empty the huge building of its 7000 occupants in three or four minutes. There is to be an arcade and thirty-six business shops along the frontages. The galleries of the great hall are to run over the shops, and separated from the premises below by a fireproof construction. Committee-rooms, ante-rooms, and all needful accessories will, of course, be provided. If the present plan is carried out in its entirety, there is to be also a smaller hall, capable of seating 700 or 800 people, in the basement, underneath the stage of the great hall. The roof of the small hall will be of fireproof and sound-proof construction, so that two entertainments may proceed simultaneously without inconvenience. The hall and shops are estimated to cost £60,000. Mr. W. Parslow, Grecian Chambers, Dale Street, is the architect.

MELTHAM.—The new town hall has just been opened. The walls are of rock-faced stone, with ashlar facings, and the style is semi-Gothic, in harmony with the opposite building—the Carlile Institute. The interior of the hall contains a large council-room, committee-room, ante-room, lavatories, collector's room, clerk's office, surveyor's room, four store-rooms, central hall, vestibule, and room for the heating apparatus. The decoration of the interior has been carried out by Mr. J. H. Stuttard, of Ramsden Street, Huddersfield. The council-room is, of course, the principal part of the building. The ceiling is of bold plaster enrichments, decorated in harmonious colours, and relieved in gold. The walls and frieze are of Tynecastle tapestry, with base border picked out in delicate tints of blue, red, and citron. The woodwork is decorated in enamel, edged with gold. The committee-room ceiling and cornices are in dead colours with stencil frieze, specially designed by Mr. Silber, of London. The walls are of imitation cheviot cloth, with dark brown Lincrusta Walton dado. The woodwork is of knotted oak with bonised moulding. The rest of the contractors are Messrs. J. Moorhouse and Sons, masons; Mr. J. M. Moorhouse, joiner; Mr. J. W. Kaye, plumber; Mr. J. Kilburn, ironwork; Mr. S. Wilkinson, for concrete; Mr. J. Hinchliff, outside painting—all of Meltham; Mr. W. E. Jowett, slater and plasterer; and Messrs. Calvert and Co., heating apparatus—both of Huddersfield. The architect of the building is Mr. Wm. Carter, the Clerk to the Council.

NEWCASTLE-UNDER-LYME.—A new institute has been erected at Newcastle-under-Lyme. It is a building of red brick, with stone dressings, the design being late Gothic. There is a low tower over the main entrance, and the principal windows are filled with leaded lights. The large hall or church-room is 63ft. by 28ft. and 25ft. high to the principals. It is fitted with platform and moveable seats, and will also be used as a gymnasium. On the other side of the main corridor are a class-room 30ft. by 21ft., a reading-room 16ft. by 22ft., and a billiard-room 30ft. by 22ft. When required, these three rooms can be used together, being separated by sliding partitions. A smoke-room is situated upstairs, and a kitchen, heating chamber and lavatory accommodation are also provided. Messrs. R. Scrivener and Sons, of Hanley, have been the architects; and Mr. S. Wilton, jun., of Newcastle, the builder; Mr. E. Peake, of Fenton, putting in the heating apparatus. The total cost has been nearly £3000.

PAISLEY.—Plans of the new Eye Infirmary have been passed. The infirmary, which will be erected on a site on the Mansion House Road, Greenlaw, will be two storeys high, the kitchen, heating apparatus, &c., being accommodated in the basement. The ground floor will consist of waiting, doctors', and dark rooms, a dispensary, with separate entrance and retiring doors for outside patients, together with a male dormitory, dayroom, and bathroom. Provision is made on the upper floor for the female dormitory, dayroom, and bathroom, and two private wards, in addition to matron's, servants', and other rooms. In connection with each of the wards a verandah will be formed, in order to permit of patients having easy access to the fresh air.

PORTSMOUTH.—A new wing has been added to the Royal Sailors' Home. The new building has an area of 130ft. by 50ft., with frontages to Queen Street of 32ft. and to Hanover Street of 130ft. In the basement is the bowling alley. It contains three alleys, and is 80ft. long by 20ft., with a maple bowling floor. There is also a large bicycle store in the basement. All the rooms in the new wing are lined from floor to ceiling with glazed bricks, the dados being light grey and the walls above being cream colour. On the street level is the ground floor, containing a well-lighted and ventilated reading-room 37ft. by 26ft., with a floor of oak blocks. The old kitchen has been absorbed in the new, which now measures 32ft. by 24ft. The dining and sleeping apartments of the male servants of the establishment are also on the ground floor. On the first, second, and third floors are 160 new cabins with lavatories on each floor. The cabin framing is varnished, and each cabin floor is covered with linoleum, and every precaution has been taken to cleanliness; the dormitories are well lighted and great attention has been paid to the ventilation and to the supply of fire escapes. The architect is Mr. H. C. Vernon-Inkpen. The builder was Mr. John Croad; and the clerk of works, Mr. A. J. Lewis.

SHEFFIELD.—A new Wesleyan Chapel has been erected in Dearne Street, Brightside Village. The foundation-stones of the chapel were laid in March last year, and the building has cost about £2255. The edifice has been erected from the designs of Mr. W. J. Hale. Stone is the material used. The contractors were Messrs. Powell and Son, and the heating apparatus was laid down by Messrs. W. Truswell and Sons.

SWINDON.—A new theatre has been opened at Swindon. In arranging the seats a gradient has been supplied, which gives everyone a view of the stage, and the acoustic properties appear to be equally satisfactory. The upper circle accommodation is particularly good in this respect, and, in addition, there is a commodious promenade. The theatre, which is to be called the Queen's, is well situated, with the principal elevations fronting Clarence Street and Groundwell Road. It has been erected from designs prepared by Messrs. R. Milverton Drake and Pizey, architects, Bristol, who have adopted the free Renaissance style, which will add to the architectural attractions of Swindon, the materials used being red brick with freestone and Reading rubber facings. The interior is of a pleasing design in Italian Renaissance. The large saucer ceiling over the grand circle is 40ft. in diameter, constructed in steel, and richly plastered, with a Stott's sunburner in the centre. The proscenium opening, boxes, circle front, and other decorative works are all in harmony with the ceiling and in accordance with the architects' designs, treated in cream and gold, with gold and old gold and blue hangings to boxes and upholstery of seats. The building, which will accommodate about 1600, is 110ft. by 90ft. wide. Ample ventilation is supplied, and a water curtain is also provided to shut off the stage from the auditorium in the event of fire. The contractor was Mr. Charles Williams, of New Swindon. The lighting and fire appliances have been supplied and fitted by Mr. A. S. Scull.

Under Discussion.

GLASGOW ARCHITECTURAL ASSOCIATION.

At the usual monthly meeting, the President, Mr. W. T. Conner, in the chair, Mr. J. A. Williamson, as delegate from the Edinburgh Architectural Society, gave his lecture on "The Wren School," which we described last week.

ABERDEEN SOCIETY OF ARCHITECTS.

The annual meeting of the Aberdeen Society of Architects was held on the 1st inst., when the following office bearers were elected:—President, Mr. James Souttar; vice-president, Mr. Arthur Clyne; hon. secretary and treasurer, Mr. John Rust; members of council, Mr. Wm. Kelly, Mr. A. Marshall Mackenzie, Mr. A. H. L. Mackinnon, Mr. George Watt, and Mr. R. G. Wilson.

EDINBURGH ARCHITECTURAL SOCIETY.

The Edinburgh Architectural Society met on the 2nd inst.—the president, Mr. W. Nicholson Cumming, in the chair—when Mr. A. Hunter Crawford, representing the Edinburgh Architectural Association, delivered a lecture on "Steam-heating." The lecturer adopted the plan of discussing the solution of an actual problem before his audience, illustrating the subject by sketches and a working model, showing a combined method of steam-heating and domestic hot water supply.

THE HISTORY OF ARCHITECTURE.

Mr. Cecil Orr, lecturing before the Architectural Society of Ireland on "The History of Architecture," first showed the origin of design from natural objects, and the rise of Greek Architecture from Egyptian and Assyrian work. He pointed out that Roman Architecture was a development of Greek work, united to the Architecture which they had got from the Etruscans. He next showed how Constantine the Great had transplanted the Roman arts to Constantinople, his new capital, where they became united with the Eastern work of the Sassanians and Phœnicians. Here Mr. Orr broke off his treatment of European work, with the remark that the native work of Ireland was derived not from the Byzantine School, but from the common origin with the Phœnicians through Carthage. He then dealt at some length with Moorish Architecture.

NOTABLE BUILDINGS IN FRANCE.

Lecturing on "Some Notable Buildings in France," at the Carpenters' Hall, London Wall, Professor T. Roger Smith selected most of his subjects from the North of France, showing lantern views of examples of cathedral and other buildings at Caen, Rouen, Mont St. Michel, Amiens, Bourges, Rheims, Paris, &c. Referring to the church of St. Owen, at Rouen, he said it was the most beautiful and most perfect in the whole of France, having a wonderful effect in height, and an interior of very lofty proportions. The lecturer wound up with a peep at Paris. Referring to Notre Dame, he said on the front door the ironwork on the woodwork was so skilfully hammered that the man who did it was thought to have been possessed by the devil, and was executed. The prison of the Conciergerie, where Marie Antoinette was imprisoned; the Tuileries, the old and the new Hotel de Ville, the Madeline, the Opera House, and other notable Parisian buildings were afterwards depicted.

"FURNITURE: PAST AND PRESENT."

At the fourth meeting of the session of the Auctioneers' Institute, held in the Lecture Hall, Chancery Lane, London, Mr. W. Roland Peck, of Messrs. Hampton and Sons, London, read a paper upon "Furniture: Past and

THE Roman Catholic Cathedral of St. John, Savannah, together with the bishop's residence adjacent, has been practically destroyed by fire. The damage is estimated at a quarter of a million dollars. The cathedral was the largest and most costly Roman cathedral in the South.

Trade and Craft.

MILNE'S ANTI-DOWN DRAUGHT CHIMNEY TOP.
 "A certain cure for a smoky chimney" must indeed come as a boon and a blessing to men. Ever since the days when the use of chimneys first superseded the more primitive method of getting rid of smoke by means of a hole in the roof, man's quest after the "certain cure," which Mr. E. P. Milne, of 101, Melody Road, Wandsworth Common, S.W., now announces, has never ceased. Certainly the anti-draught chimney top in question has many merits to recommend it. Its action being syphonic, the main flue is not affected by any atmospheric depression, and the up-draught is very consider-



ably increased. The arrangement of the top has been very carefully considered artistically, and also with regard to the arrangement of the interior, so as to allow of its being easily cleaned by the chimney sweep. Painted terra-cotta colour, Milne's chimney top harmonises well with a brick or stone building, where the usual metal cowl would be an eyesore. The system has been tried under almost every condition of down draught with unvarying success.

W. DUNCAN TUCKER.

Horticultural accessories of various descriptions often come within the purview of the architect. An improved portable wall fruit tree coping for sheltering the buds and blossoms of wall trees from frosts, which has been put on the market by Mr. W. Duncan Tucker, F.R.H.S., of Lawrence Road, Tottenham, should rank high among the protectors of the kind. It fulfils its purpose admirably. It is a simple structure of portable glazed sashes and iron brackets, the latter being fastened to the wall by bolts. The glazed lights are 6ft. 7in. in length, and slide in grooves in the iron brackets, being firmly held in place by wedges. The lights can be removed in a few moments, an advantage during a shower of rain. Some neat designs for conservatories are given in Mr. Tucker's catalogue, and in each case they are constructed in harmony with the style of architecture of the building which they adjoin. Among other designs illustrated are a three-quarter span range, erected at Bromley, a span-roofed greenhouse with the latest improvements, and a conservatory of striking design, with lantern and transept roof and with the transoms ornamented by the introduction of lead light, glazed with cathedral tinted glass. Mr. Tucker is up-to-date with horticultural requisites of every kind.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BARKING.—For erecting shops at Barking. Mr. F. S. Hammond, architect:—
 Lark and Son ... £5,096 Johnson ... £4,992
 Shurmer ... 5,015 Gibb ... 4,400
BURNLEY.—For the construction of sewer, for the Rural District Council, Mr. S. Edmondson, District Surveyor, 18, Nicholas-street, Burnley:—
 Smith & Biscock £2,414 11 2 Thos. Horrocks ... £1,718 6 8
 E. Cheetham ... 1,957 0 0 Edmund Heap ... 1,660 15 0
 J. & G. Duxbury 1,841 13 3 Joseph Wadge ... 1,642 1 0
 Emanuel Riley ... 1,828 3 4 Metcalfe & Dinsdale ... 1,561 1 5
 T. Dent & Sons ... 1,821 16 9 J. & J. Lee ... 1,557 9 0
 G. Read & Son ... 1,508 11 4 J. M. Hawley, Colne ... 1,320 4 0
 H. Fotherby & Son 1,304 0 9
 Smith Bros. ... 1,747 6 3
 *Accepted.

HENDON.—For the construction of artificial filter, pump-chamber, concrete carriers, etc., at the Sewage Outfall Works, for the Urban District Council of Hendon. Mr. S. Slater Grimley, engineer:—

	Above schedule for extras.	Per cent.
M. S. Kitteringham	20	£1,585 16 3
C. Ford	25	1,521 18 0
Allen Bros.	15	1,355 19 4
R. Ballard, Ltd., Child's Hill, N.W.*	10	1,241 14 10
T. Adams	20	1,312 0 8
H. Lee	at the schedule	1,318 17 7

*Accepted.
KIRKCALDY (N.B.).—For the erection of six shops and fifteen houses, High-street, for the Whitehouse Estates Company. Mr. Robt. Little, architect, 4, St. Brycedale-avenue, Kirkcaldy:—

Masonry.—Geo. Smith and Son	£4,150 0 0
Joinery.—Thos. Scott and Co.	2,576 0 0
Plumbing.—Jas. Johnston	985 12 6
Slating.—Currie and Cant.	148 2 0
Plastering.—Wm. Ure	516 18 0
Ironwork.—Barnet & Morton	633 6 6

LONDON.—For electric light wiring of the Abbey Mansions, North Block, Victoria-street, S.W. Mr. Morgan Williams, consulting engineer, 39, Victoria-street, S.W. Mr. Charles J. C. Pawley, architect, 66, Victoria-st., S.W.:—
 Estimated total for tenders No. 1 and No. 2, with branch wiring for 610, 3/22 S.W. (4) points.

Electrical and General Engineering Co.	£1,656 0 0	Laing, Wharton, & Down	2,991 9 0
Hill, Giffins, and Co.	1,342 14 0	Warburg, Dymond, and Co.	968 0 0
H. M. Leaf	1,147 10 0	Belshaw and Co.	909 15 0
Drake & Gorham	1,095 0 0	C. A. Hemingway	838 12 0
Townsend, Tampion, & Makovski	1,046 2 6		

LONDON.—For alterations and additions at Albany-street Police Station, for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, architect. Quantities by Mr. W. H. Thurgood:—
 Chessum and Sons ... £6,459 Scrivener and Co. ... £5,595
 Holloway Bros. ... 6,350 Higgs and Hill ... 5,594
 Willmott and Sons ... 6,067 Perry and Co. ... 5,500
 Sidney Hart ... 5,945 J. O. Richardson ... 5,555
 Grover and Sons ... 5,916 Lathey Bros. ... 5,480
 T. Parker ... 5,839 Lascelles and Co. ... 5,326
 Lawrence and Son ... 5,689

LONDON.—For the enlargement of the Battersea Fire station, for the London County Council:—
 Marchant & Hirst £6,195 0 0 Stimpson and Co. ... £5,170 0
 J. N. Try ... 5,337 10 11 C. F. Kearley ... 4,895 0
LONDON.—For the enlargement of the Hampstead fire station, for the London County Council:—
 R. A. Verbury & W. Whiteley ... £4,066 11 7
 Sons ... 25,243 0 0 F. Gough & Co. ... 4,854 0 0
 J. N. Try ... 5,109 10 7

LONDON.—For the reconstruction of the Holborn branch of the Fleet sewer between Gray's Inn-road and Southampton-street, for the London County Council:—
 J. H. Neave ... £14,464 4 3 J. Dickson ... £13,245 3 1
 T. Adams ... 18,762 J. Mowlem & Co. ... 10,883 10 2
 Pedretti and Co. ... 19,311 16 8 E. Iles ... 10,395 15 0
 F. A. Jackson & Son, Limited ... 13,299 5 9 C. W. Killingback and Co.* ... 9,978 18 5
 *Accepted.

LONDON.—For the erection of a block of school buildings at Goodall-road, Leyton, E., for the Leyton School Board. Mr. William Jacques, Architect to the Board. Quantities by Messrs. R. L. Curtis and Sons:—
 J. Gately ... £23,995 Reed and Son ... £20,217
 Perry and Co. ... 21,560 G. Sharpe ... 19,967
 S. J. Scott ... 21,531 Gregar and Son ... 19,283
 Stimpson and Co. ... 20,967 F. J. Coxhead* ... 18,996
 Kirk and Randall ... 20,830
 *Accepted subject to the approval of the Education Department.

MACCLESFIELD.—For the execution of sewerage works, Poynton, for the Rural District Council. Mr. J. Thorpe, surveyor, 19, King Edward-street, Macclesfield. Quantities by surveyor:—
 T. and W. Meadows ... £5,585 A. Taylor ... £4,475
 W. Underwood & Bros. ... 5,113 J. Randall ... 4,415
 A. Kellett ... 4,782 F. Barke, Stoke-on-Trent* ... 4,076
 M. Hall and Sons ... 4,761
 J. Slinger and Sons ... 4,599
 *Accepted.

PRESTON.—For erecting a new school, and for extensions to present buildings, Royal Cross School. Messrs. Sames and Green, architects, 65, Northgate, Blackburn:—
 M. Shorrocks ... £3,570 J. Christian, Preston* ... £3,450
 *Accepted.

RUSHDEN.—For conversion of premises into shops and offices, for Mr. E. Claridge, Rushden. Messrs. Mosley and Anderson, architects and surveyors, Goodyear-chambers, Northampton and Finedon. Quantities by the architects:—
 R. Cosford ... £415 0 R. Marriott ... £235 10
 Whittington & Tomlin 379 0 H. Sparrow ... 355 0
 J. Willmott, jun. ... 375 0 Hacksley Bros., Well-
 T. Willmott ... 370 0 ingborough* ... 360 0
 T. Swindall ... 366 10
 *Accepted.

RUSHDEN (Northants).—For the erection of a villa residence, Kimbolton-road, for Miss K. Smith. Mr. H. Adnitt, architect and surveyor, High-street, Rushden. Quantities by the architect:—
 R. Marriott, jun. (accepted on a schedule) ... £650

RUSHDEN (Northants).—Accepted for the erection of a shoe factory in Glassbrook-road, for Mr. W. Hewitt. Mr. H. Adnitt, architect and surveyor, High-street, Rushden. Quantities by the architect:—
 T. Willmott, jun. ... £277 10s.

RUSHDEN (Northants).—For the erection of a villa residence, Fighles-terrace, for Mr. H. Bull. Mr. H. Adnitt, architect and surveyor, High-street, Rushden. Quantities by the architect:—
 T. Willmott, jun. (accepted on a schedule) ... £1,399

RUSHDEN (Northants).—Accepted for the erect of a villa residence in Park-road, for Mr. F. Corby. Mr. H. Adnitt, architect, High-street, Rushden. Quantities by the architect:—
 Robt. Marriott, Rushden ... £75

ST. ALBANS.—For the erection of villa, Actna-roa, for Mrs. MacLarty. Mr. Percival C. Blow, architect, 7, London-road, St. Albans:—
 J. and W. Savage ... £500 Bushell* ... 254
 E. Dunham ... 468
 *Accepted, subject to slight modification.

SEVENOAKS.—For erecting a Drill Hall, outbuildings, lavatories, drainage, and cottage, for the "G" company, 1st Vol. Batt. R.W. Kent Regiment. Mr. Thos. Potter, architect, 47, London-road, Sevenoaks:—

	Hall.	Cottage.	Total.
Thomas and Edge	£1,529 0 0	£463 0 0	£1,992
Law	1,469 14 7	382 7 11	1,852
Jones	1,326 2 1	423 6 10	1,749
Irwin	1,280 0 0	433 0 0	1,713
Hodges	1,275 18 0	380 15 0	1,650
Wiltshire	1,250 0 0	375 0 0	1,625
Bevan	1,223 0 0	358 0 0	1,581
Barnes	1,170 0 0	346 0 0	1,516
Thomas	1,138 11 4	360 2 0	1,498

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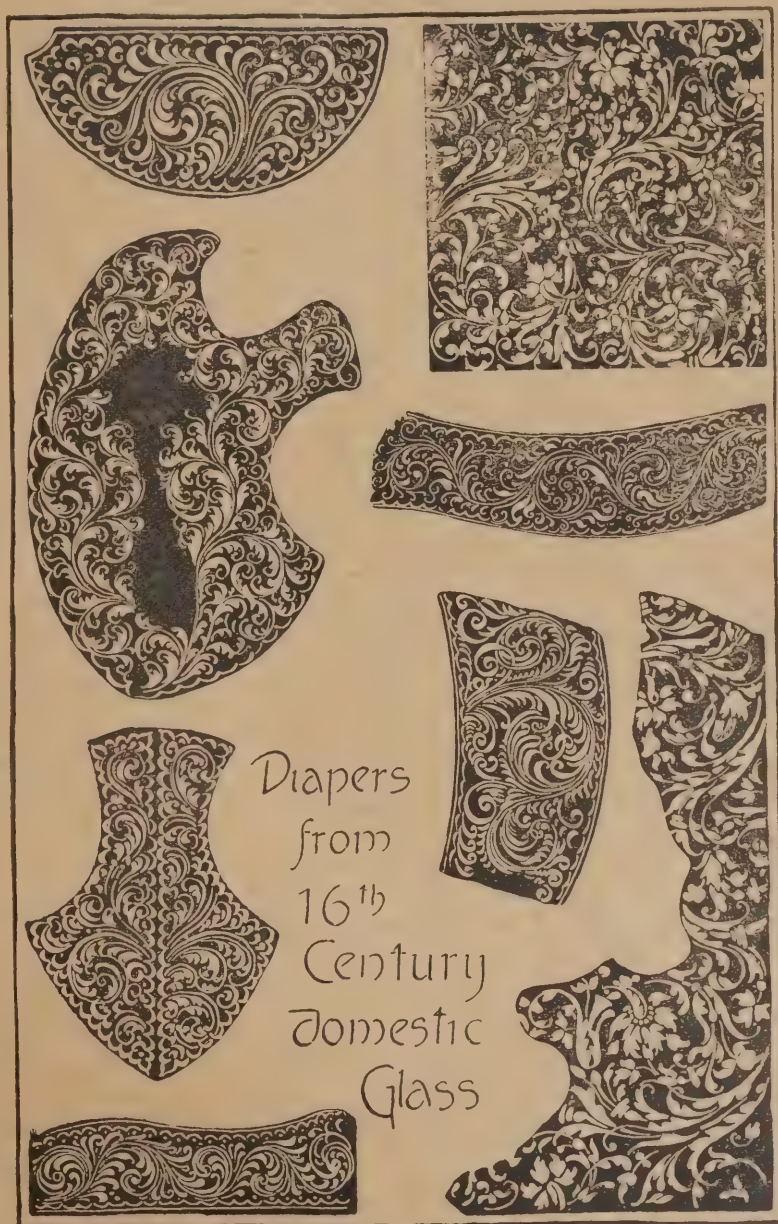
The Dorking "Fowl."

ONE is inclined to believe that since the term "Dorking Fowl" has so readily

spread from the domain of Zoology, and grown familiar to the public lip, so will the term *Dorking Competition* one day escape the bounds of architectural history to find just such another popular notoriety as "French leave," and serve as a cant phrase to designate a match, a contest, or a trial of skill which is no reality at all, but a humbug and a sham. In Architecture, however, *Dorking Competition* will always find a more exact interpretation than that granted it by the public, very much in the same way as "Dorking Fowl," which has a precise and definite meaning to the naturalist and poultry fancier, is in general used merely to indicate a fowl more largely imbued than ordinary with the air of fuddled dignity which characterises the bird. On referring to the books, one learns that a Dorking fowl is "one of a breed of large-bodied domestic fowls, having five toes, or the hind toe double. There are several strains, as the *white*, *grey*, and *silver-grey*. They are esteemed for the table." Upon this model, and in absence of any authority, one has ventured a definition of *Dorking Competition* as follows: "One of a large breed of foul public competitions, having only five or six designs submitted to the assessor, and the face of the committee double. There are several degrees, as the *almost white*, the *distinctly shady*, and the *downright dirty*. They are esteemed for copy." The late Dorking Workhouse Infirmary competition, which has provoked one to the above remarks, has duly brought its crop of protests; and a crop that is more than warranted by the facts. But a protest is the plaint of the underling; the protest of the strong is by way of threat. One is puzzled to conceive in what sort of regard the public hold the status of the Profession when, twenty times in a year, a half-dozen of rural shopkeepers joined in committee can reduce it to a state of protest. One conceives that such a ludicrous disproportion exists nowhere in the scheme of Nature; it has been left for civilization and architects to produce the monstrosity. In the present case, it would seem strange if the competitors in combination could not find some redress at law, if they chose to bestir themselves. The story is immense, even in the annals of "competitions." The conditions stated that a professional assessor would be appointed; and that this explicit statement was a strong inducement to competition is established by the fact that, in spite of the special and technical nature of the subject, no less than 39 sets of designs were submitted. After the drawings had been sent in, there came the ominous pause: The Guardians must have been exercising themselves consummately as to a scheme which should enable them to employ an assessor, and yet retain the 'nice-pretty' design they had set their hearts on. One sympathises. The usual method of frankly setting the assessor at the designs and chancing it, leaving it open to have a new

competition or set aside his award should he not choose aright, seems to have struck them as a bit hackneyed and stale. One appreciates their fine feeling. They probably made thorough enquiries, and on learning that the usual attitude of competing architects under the processes of bamboozle was one of supine apathy relieved only by a few puerile whimperings of protest, decided to venture on an original exploit of their own, and create a precedent for brother Guardians in other parts of the country. One admires

justice and assume that their taste in Architecture did not mislead them, and that their selection was as much a matter of chance as though it had been made by lottery. This means that the chance that the first design would be included in the ten selected by the Guardians is but as one to four against it; upon the most liberal computation it is four times more probable that the assessor never saw the first design than that he made his award to it. The significance of this action of the Guardians may be emphasised as



EXAMPLES OF SCRATCHING OUT.

(From Lewis F. Day's "Windows: A Book about Stained and Painted Glass." By kind permission of the Publisher, B. T. Batsford.)

their originality and daring. After a protracted sitting, the Guardians arose, blew their noses, selected ten 'nice-pretty' designs and set them aside for future assessment. Now, from knowledge of how this particular Board of Guardians is precisely constituted, one holds it fair to conclude that the Guardians, in selecting one from every four designs, would be nearly certain, unless they made a great blunder, to omit the first design (i.e., the design the assessor would have chosen on a view of the whole thirty-nine), because they would choose what was meretricious, superficial, and trivial in character; but one will do their case full

follows: If there had been eight sets of drawings submitted, instead of thirty-nine, and the Guardians had desired to pervert and direct the choice of the assessor to a proportionate extent, they would have abstracted but *two* for him to adjudicate upon; if four had been the number of competing designs, they would have selected one. This last proposition may seem puzzling, but it is none the less true; and illustrates the exact value of the promise of an assessor as fulfilled by the Guardians of the Dorking Union. If this is not a "Dorking Competition" one really does not know what is.

B. C.

STILL another architectural competition calling for comment! This time the action of the play is in Hampshire; the Eastleigh Urban District Council is the "villain" of the piece, which, apart from the triteness of this kind of entertainment nowadays, seems to lose in interest through a lamentable lack of the comedy element. The facts are very simple. The Eastleigh Urban District Council invite designs for public offices, &c., and the drawings are sent in on February 7th. Two days later—i.e., on the 9th—printed letters announcing the result of the competition are sent to the competitors, and on the 10th the drawings are returned and delivered in London. Herein the Eastleigh Urban District Council has displayed exemplary promptitude. The members deserve credit for the benevolent feelings which induced this speedy action, for they were no doubt prompted by a desire to relieve the suspense of such youthful aspirants as ranked among the competitors. In their hurry, the District Council, so far as we can ascertain to the contrary, omitted to call in an assessor—an omission which, under the circumstances, might lead the suspiciously-inclined to doubt their motives and strict integrity. It is true the Council did not promise, in so many words, to appoint an assessor, but in the conditions they stated that they would "probably" call in such expert assistance, and added: "Any attempt to unduly influence the decision of any assessor will disqualify a competitor." This was holding out a hope which the local authority found inconvenient—or undesirable—to fulfil. Perhaps the wise men of Eastleigh eschewed the services of an assessor on the ground that he would be too deliberate; for in energy and "pushfulness" the local District Council comes second only to Mr. Chamberlain. There was one clear day—not taking into account the printing—in which to adjudicate upon the designs, and the Eastleigh Urban District Council rose to the occasion right manfully; they settled the whole business within the space of a few hours. In order the more to appreciate this feat, one would like to learn the precise number of drawings upon which these august councillors passed judgment. To seek to belittle their achievement, and to cast reflections on their integrity by suggesting a pre-conceived prejudice would be uncharitable. And so the palm must go to Eastleigh for having settled an architectural competition in record time. The occasion has called forth a reiteration of the suggestion that an edict should go forth from the Institute forbidding any member from competing where there is no definite undertaking to have a professional referee. Theoretically, this end is quite easy of attainment. It is but necessary to secure perfect unanimity on the point throughout the Institute ranks, and one of the prime causes of discontent in connection with architectural competitions would soon disappear. There is no immediate prospect of such an edict being issued by the Institute, however, and therefore the prospect of the establishment of an universal system of assessors is equally remote. Even were such a system established, there would still be unrest; the institution of juries to adjudicate in all architectural competitions would then be insisted on. H. C.

A New Conservative club is to be built at Nuneaton, at the corner of Bond Street and New Bridge Street, and not far from the London and North-Western Railway Station. The architect is Mr. Charles W. Smith, Grantham, and the contract has been secured by Mr. Thomas Smith, of Chilvers Coton, whose tender amounted to £5126.

EXAMPLES OF OLD FURNITURE.

By A. E. CHANCELLOR.

A REPUBLICATION of drawings which have already appeared in the Building News. For the purpose of reproduction in a rapidly-printed journal they are very good, but show too much sameness of execution and effect to satisfactorily express the differences of style and workmanship in the very different periods illustrated, now that they are republished in book form; for the manipulation which gives the effect of a sixteenth century oak cabinet is quite insufficient to render the much greater delicacy of a Louis Seize commode. Most of the drawings appear to have been made more or less in a journalistic fashion, that is to say, a visit has been paid to a sale room, or to a newly opened exhibition, for the purpose of seeing and reporting on what was most interesting there, and the result is that the objects selected have been chosen from among the most striking and eccentric examples rather than from those of the best design. Among the drawings of chairs, for instance, there are a few that are excellent in design, many that are quaint and strange, and several that are definitely objectionable. It is a pity that there are not more detail drawings, which would add much to the value of the book—pp. 4, 6, 13, 26, 30, and 36 exhaust the list—and a few sections and notes on the development of construction would have been acceptable. A considerable proportion of the plates show pieces of furniture which are of some historical interest, from the halls of the Vintners' Company, the Haberdashers, the Parish Clerks, the Carpenters', the Stationers', and the Charterhouse; also the fine chimney-piece from the palace at Bow, happily rescued and lately set up in the Museum at South Kensington. There are likewise an escritoire, said to have belonged to Dean Swift, the cradle of the Earl of Derwentwater, and an Italian cabinet formerly in the possession of Charles I., which figured in the background of Sir J. E. Millais' picture of "The Princess Elizabeth in the Tower," and now stands in the marble hall at Hatfield House. In turning over the pages, one is forcibly struck with the over elaboration of much of the carved oak work. Look, for instance, at the seventeenth century cabinets on pp. 33 and 39. The idea appears often to have been to plaster as much carving on the article as possible, without consideration of construction, the requirements of utility, or the spacing and focussing of the ornament. Look, again, at the pendants and projections on the chairs on p. 22, which seem to be stuck on for the purpose of being broken off or of catching in the dress, and at the settee on p. 10, with its ridiculous little ornaments in the centre of the front of each seat, and, worst of all, at the ornament so frequently used in Jacobean work, the half balusters planted on in every conceivable place, whether appropriate or not. On p. 12 is an example in which they form the centre ornaments of three round-headed panels. Another point to which exception might be taken is the over heaviness of proportion in the carved and turned legs and angle balusters in tables and buffets, and the want of proportion between the upper and lower portions of the latter and of the court cupboard, of which several specimens are given. But these latter objections do not apply to Mr. Chancellor's work, except in so far as they may show that in selecting his examples for illustration he has been scarcely fastidious enough. He says in his preface that his aim has been "to portray not only typical examples of any well defined period, but also unique specimens and uncommon varieties, which derive additional interest from some charm of singularity or freshness of idea." This aim has led him to give rather too large a space to eccentricities.

S. S. G.

ABBAY RUINS.

VANDALS AT WORK IN WALES.

IT is rumoured in antiquarian circles that a considerable portion of the remains of the famous Strata Florida Abbey, Cardiganshire, has been carted away to be used as material for the building of a new church in or near the village of Pontrhydfendigaid. Some ten years ago the ruins of the abbey, which then consisted of little more than the fine western doorway and some slight remains of walling at the eastern end of the edifice, were thoroughly and scientifically excavated by the efforts of the Cambrian Archaeological Association, under the personal superintendence of Mr. S. W. Williams, F.S.A., of Rhayader. The result of the operations then carried out showed that the abbey church, in the days of its glory, when the notables of ancient Wales assembled within its walls to swear allegiance to the son of the greatest Welsh Prince, Llewelyn ap Iorworth, was a building

SECOND ONLY IN BEAUTY AND MAGNITUDE to the magnificent pile of Bishop Peter de Leia at St. David's. It also threw considerable light upon the conventual arrangements of Welsh monastic houses. A large number of burials are recorded in the ancient Welsh chronicles to have taken place within the abbey, and it was evidently the favourite resting-place of the family of the founder. During the excavations several graves were found in the church and also in the chapter-house, and others were discovered outside the chapter-house, having small headstones carved in the beautiful spiral work that is characteristic of true Celtic Art. The eastern chapels, three in number, on each side of the great altar, were discovered in such a state of perfection that their ground features could be made out with ease. The east end of the church had been paved with glazed heraldic tiles, and as many of these as could be found entire were laid down in the chapels. The abbey ruins have proved a source of considerable attraction to visitors to Aberystwith, many hundreds finding their way to the remains of the famous Cardiganshire abbey in the course of the summer season. It will hardly be credited that someone has tampered considerably with the still remaining portions of the ancient abbey. Not only has a quantity of stone, which had been dug out from the fallen portions of the building during the excavations, been taken away, but, says the Western Daily Mail, we are informed that the walls of the chapter-house and other portions of the church, which in some places remained to the height of over 6ft., have been at least partially destroyed. The entire ruins are said to present a lamentably dishevelled appearance.

CONSIDERABLE INDIGNATION HAS BEEN EXCITED

in the neighbourhood, where the ruins of the most famous of Welsh Abbeys are regarded with pride, not, perhaps, unmingled with the feeling that they are also a source of profit. The attention of Lord Lisburne, the owner of the land upon which the abbey ruins are situated, has been directed to the matter, and his lordship's agent, Mr. Gardiner, of Wenallt, is understood to have taken it in hand. The officers of the Cambrian Archaeological Association have also been communicated with, but, as the Association does not possess a permanent habitation, it is difficult to bring the weight of its displeasure to bear in an immediate and effective manner. A meeting of the Committee formed some time ago with the view of preserving the ruins is to be held at Aberystwith during the present month, when it is intended to proceed to the abbey for a thorough inquiry into the extent of the destruction that has been wrought. The report that even a single stone of a building intimately connected with all that is proudest in the history of the Principality has been removed from its original position cannot but arouse the keenest feelings of indignation amongst Welshmen everywhere; but we venture to hope that the injury already done is not irreparable.

WINDOWS : *

A BOOK ABOUT STAINED AND
PAINTED GLASS.

BY LEWIS F. DAY.

A BOOK from the pen of Mr. Day upon any subject of which craftsmanship forms an important part, may be expected to contain full details of the mode of producing the effects proper to the material, and perhaps a little over-glorification of the tool and the lessons taught to the designer by practice in its use; and it is evident that when writing his book on "Windows," he has felt the usual bias impelling him, and has striven with all his might to be sternly impartial, and to see excellences in work which in his more enthusiastic moments he would condemn. At least, it is only in this way that the non-committal tone in which he speaks of some of the later picture windows can be explained, for he has made no secret of the extreme views which he holds on the treatment and selection of subject for windows of the richer sort.

The book appears to be designed mainly for the instruction of those who know little or nothing about "glass" in the technical sense, and to such people should be of very great use. It is divided into three sections, in the first of which the development of craftsmanship is traced from the earliest known examples to its final decadence; in the second design is treated similarly; while the third contains chapters upon various points not conveniently included in the other sections, among which is a good *resumé* of the characteristics distinguishing the styles, after studying which no one should make any great mistake, within certain limits, in judging the date of a window which interests him. This section also includes a suggestive chapter on "How to See Windows," in which the enormous difficulties with which the designer has to contend are hinted at incidentally, and it is shown how impossible it is that a window should look equally well at all times, however carefully it may have been considered and carried out, which should give pause to those who glibly condemn such work after one cursory glance. The arrangement of the matter necessitates a certain amount of repetition, and one is conscious of it when reading the book through, but it may be no disadvantage in a work intended to instruct.

A full account is given of the processes gone through in making and putting a window together, starting from the simplest sort of work, and the reasons are explained for so arranging the leads in the more complicated designs that the shapes of the individual pieces of glass should remain tolerably simple. There is, however, no mention of the necessity of also so arranging them that the strains may be equally distributed, which is quite as important, for the weight of a panel of stained glass is considerable, and, if this be not properly attended to, the durability of the work is much impaired. Stress is laid upon the superiority of pot-metal colour to colour obtained in other ways, and it is shown that even in comparatively late Renaissance times there were glass painters who understood how to use the "mosaic" of glass with excellent effect. A very probable reason is given for the frequent occurrence of diapers formed of small pieces in early glass—viz., that the imperfect methods of cutting resulted in great waste of material, which the craftsman thus sought to utilise, and not always successfully, the effect of the juxtaposition of small pieces of brilliant colours in producing a compound tint not having been understood.

The evolution of painting as distinct from glazing is described, and prominence is given to the temptation which besets all craftsmen, leading them to overvalue the conquest of difficulties, the triumph of technique often causing them to lose sight of the true goal; and one is glad to see a protest made against the doctrine of "Art for Art's sake," and a

recognition of the fact that subject is of considerable importance, which needs insisting upon nowadays.

The second part ends with a postscript on style in modern glass, addressed to the glass-worker and designer, which contains a great deal of sound sense, but in which the argument needs concentration. While acknowledging the necessity of study and intimate knowledge of old work in many styles, it pleads for what every true artist must strive



ALL SOULS' COLLEGE, OXFORD.

From Lewis F. Day's "Windows: A Book about Stained and Painted Glass."

for, that is, that all such material should be thoroughly digested by the designer, so that his work should not imitate so much in detail as be informed by the spirit which guided the old craftsmen, for his design should be in harmony with the building of which it forms part.

It may be laid down as an axiom by which to judge the possibilities of success in subject design for glass, that forms which are intelligible in silhouette, or can be expressed in outline, are admissible, but that anything which requires gradations of tone (in the naturalistic pictorial sense) to explain its shape is not suitable for that form of design. That is to say, that strong light and shade,

or violent fore-shortening, or aerial perspective, are out of place, though one may somewhat relax this last rule in domestic glass on a small scale. For the effect of a stained glass window depends, not upon powerful realisation of an incident, but upon so treating the subject that the space may be agreeably filled with patches of colour, simple or intricate in design according to the position, rich and dark or light and silvery according to the amount of light required to be admitted or shut out; and the designer must plan his work with full knowledge of all the conditions, recognising also that the scale of the building is a most important factor in determining the treatment required. Work torn from the surroundings for which it was calculated often looks coarse and heavy in a museum, especially when taken from a large building, while the glass which pleases the eye of the inexperienced beholder most, such as the delicate late Swiss glass, is absolutely ineffective at a distance.

In referring to the subject of canopies, which fill so important a space in ancient windows, Mr. Day expresses his disapproval of their use pretty strongly. His argument, briefly stated, amounts to this: That they are frequently disproportionately large, dwarfing the figures beneath them, and that they are bad because they are imitative of stonework, and, therefore, appear to block up again a space in the wall which has been opened for the purpose of giving light; and on page 184 he ejaculates: "What a strange thing it is in the history of ornament that the natural bias of the designer seems to be so irresistibly towards imitation! The man's first thought seems to be to make the thing he is doing look like something it is not!" This characteristic of man's mind runs through a great deal of his work, and is not only to be observed in ornamental design, but one may ask upon what design of any sort is to be founded if not upon imitation either of natural objects or of the work of his own hands? Imitation, limited by the conditions of the material, has always been the basis of ornamental design, and always will be; and in the matter of the canopies, he himself allows (on p. 315) that "the late Gothic canopy work does most effectually frame the pictures," and that "there is no denying, nor any desire to deny its admirable effect." If ornament replaced architectural forms, as he appears to desire, the objectionable imitation would still be present, just as it would be in the rest of the window, the whole of it being restrained by the conditions of design for glass. Mr. Day appears to think that the use of architectural forms in glass is due to the likings of the architect. One may suggest another reason, viz., that their introduction gives a sort of architectural flavour and framing to the subjects represented in the window, marrying it to the wall as it were; and to some designers, nowadays, there is a fascination in playing at architectural design in an irresponsible way, without fear of catastrophe, which probably moved the old designers as well, and may account for the dream canopies in the churches in Rouen and elsewhere in France, the windows of which are so beautifully filled with towering masses of luminous glass suggesting architectural design. The real object of the attack made upon canopies is explained a little lower, and every artist must sympathize with the endeavour to stamp out the "trade" canopy. But there are other trade expedients for cheapening the cost of glass, and Mr. Day's object would certainly not be attained by the substitution of ornamental work, or even of plain glazing.

It is held by many persons in the present day that designer and executant should be "one and indivisible," and it is assumed that it was under these conditions that the great works of the past which we so much admire were produced. This has not been proved, as Mr. Day allows, and it is more likely that each contractor had his assistants. It is of course essential that the designer should know thoroughly the capabilities of his material, and should be able to show his assistant exactly what he wants done if explanation is insufficient. It is also essential to success that

* "Windows: A Book about Stained and Painted Glass." By Lewis F. Day. Published by B. T. Batsford, 94, High Holborn, W.C.

the assistant should be in harmony with the designer and take pride in his part of the work; but there is always the danger, when there is but one hand and brain employed, that the dexterity of manipulation should lead the design, instead of the design taking advantage of the perfection of manipulation. Mr. Day says, when speaking of modes of design: "If you want all that glass can give in the way of colour, begin with the mosaic. If you want pictorial effect, think first of your painting. If you want to get both, balance the two considerations equally in your mind from the first. Only, to do that, you must be a master of your trade." And this last sentence is really the heart of the matter. A master of his trade will give due consideration to spacing and proportion of mass, line, and colour (and no one but a master can be successful in that most difficult part of design); he will take care to assist the architect's intention in arranging the lighting of his building by the effect of his work; he will supervise the choice of the glass to be used in each part of his window, if he does not actually choose each piece himself, he will draw his cartoons with knowledge of the effect to be produced by each part, calculating the difference produced in it by greater or less distance and by the different colours of the glass, and will correct and alter the painting, if necessary, to ensure success.

Glass is made now quite as beautiful in colour and texture as any to be found in ancient windows, and if the craftsman will be at the trouble of seeking it, and can induce his client to pay a proper price, there is no reason why the glories of the old cathedrals should not be emulated in the present day.

S. S. G.

PROFESSOR HERKOMER, R.A., has had the honour of submitting to Her Majesty at Buckingham Palace his picture of the Jubilee, entitled "The Guards' Cheer."

The contract for the erection of the Tottenham Higher Grade Schools, of which Mr. A. M. Butler, of 16, Finsbury Circus, is the architect, has been secured by Messrs. H. Knight and Son, of Tottenham.

The Nottingham Architectural Society is holding an exhibition of the principal prize drawings in connection with the R.I.B.A. recent competitions. The designs and drawings are arranged in the Castle Museum.

The enlargement of Tadcaster Parish Church by the pulling down and putting back of the north wall to the extent of 8ft. has been completed, at a cost of £1300. A five-light window has been inserted at the west end, and a leaden roof with open oak rafters takes the place of the old slated roof. The two vestries, which have been enlarged, are approached by oaken doors, on which is a carving representing the wise and foolish virgins, with traceried panels, designed by Mr. Thorman, and executed by Mr. G. W. Milburn, of York. The architects were Messrs. Bromet and Thorman.

THE STUDY OF ARCHITECTURE.

By PROFESSOR AITCHISON, R.A.

ADDRESSING the members of the Birmingham Architectural Association recently, Professor Aitchison said the first thing anyone who desired to become an architect should be sure of was that he had a natural gift for the work, and if he found that he had no taste for it, and that he had been mistaken in

own country. Architecture was pre-eminently a constructional Art, and consequently it was of the utmost importance that any man who wanted to become an architect should make himself sufficiently acquainted with the subject, so that he could build with satisfaction to himself and to those who used the edifice.

THE SCIENCE OF CONSTRUCTION

was statics, and it was necessary that every man who professed to be an architect should learn sufficiently of statics to be able to gauge the security of walls against the pressure of the wind, water, and earth, and even against the pressure of goods stowed against them that had an inclination to slide. He must know the pressure that was exercised by vaults, domes, and arches, and learn how those might be properly abutted, as well as understand how to prevent walls, piers, and columns becoming forced out of the vertical. Besides statics, they had to learn the force and strength of the different materials that were used. Unless a man knew the outlines of construction, he could hardly be called an architect, although he might be an admirable designer and planner. In planning it was important that each room, passage, and staircase should be as well adapted as possible to the uses to which it was to be put. The whole should be packed into as convenient a place as possible so that there might be no lost room, and the most frequented apartments should be conveniently situated. All public buildings should be well planned and striking or impressive to look upon. Architecture was the accretion of knowledge from the very earliest pre-historic time when any kind of building was put up. The great thing a man who could plan and construct ought to know was how to make the necessary portions of the building he was putting up tell the tale that they were required to tell. He was sorry to say that a great deal too little attention was paid to that matter in England, for they saw all kinds of incongruous ornaments and decorations put on all sorts of places. It was probably ten times more difficult to get a thing to look well that was simple than if it was ornamented.

GREAT ORNATENESS WAS A MISTAKE,

for it was never equal to the perfection that could be obtained by the greatest possible simplicity. He referred at some length to Classic Architecture, and said that in every architectural epoch of importance the world had known some buildings were erected that had been the admiration of succeeding generations, and now all persons of culture and wealth would as soon think of being ignorant of the great writers of their own countries as not to have seen Rome, Athens, Italy, and Florence. He did not know we were very much inferior in Gothic days in our works to the French, but he was afraid in his time there had not been so many great buildings put up that would bring persons to see them from all parts of the world.



FROM REGENSBURG, MUNICH MUSEUM.

(Re-published from Lewis F. Day's "Windows: A Book about Stained and Painted Glass.")

the passion, he should get his living in something else. The Profession of an architect was by no means a moneymaking profession, and if a person found he could not devote himself with all the energy he possessed to the study of Architecture, he might surely do something better than spoil the look of the face of his



RENAISSANCE MOSAIC GLASS.

(From Lewis F. Day's "Windows: A Book about Stained and Painted Glass.")

ARTS AND CRAFTS AT
LIVERPOOL.

SUPPLEMENTARY NOTES.

BY ERNEST RADFORD.

WE are able this week to supplement our notice of this Exhibition with a little additional matter. The illustrations held over are of Mr. Anning Bell's frieze, Mr. F. W. Pomeroy's plaster relief, Messrs. Rottmann and Co.'s "Peony Surf" frieze, and Mr. Temple Moore's church, St. Magnus, Bessingby, Yorks, Mr. Skipworth's church at Fulham, and two tile designs by

tainly not a purist in style, like Pugin and others of his persuasion, but we have taken to heart the advice Mr. Selwyn Image once gave in a lecture, which was that we should cultivate, whatever it cost, a Catholic appreciation of Art, selecting always the best, whether it owed its inspiration to Raphael, Rembrandt, Ruskin, or Wren, and whether that inspiration came from Paris or far Japan. The advantage of adopting this view is too obvious to be insisted upon. It allows us to fill our pages with illustrations drawn from all sources, and to give praise to the giver of good, whatever he aims at.

Referring again to a catalogue, we find that No. 651, by Mr. Christopher Whall, attracted attention; of architectural drawings by Mr. Seth-Smith the same may be said (Nos. 691,

of payment for space on the floor and the walls, and this, as is very well known, is against the rules of our Arts and Crafts Exhibition Society, wherein the opinion prevails that it is better to forego an annual exhibition than to have a gallery filled in this way.

Another and obvious cause is the issue of apparently unconditioned invitations to exhibitors whose names, in Liverpool at least, are attractive. To take but one instance: The exhibits of pottery ware by the Della Robbia Company Limited must amount in all to some hundreds. It is possible—for such is the taste of the day—that their worst is more marketable than the things we have praised, but there are markets and markets, and it is on all accounts desirable that this should be more exclusive than others. It is known in the



LIVERPOOL ARTS AND CRAFTS EXHIBITION. NEW CHURCH OF ST. ETHELDREDA, FULHAM.

Mr. Conrad Dressley. The mind must be exceptionally retentive that after its owner has quitted the exhibition building for good, has more than an indistinct recollection of what it contains of Art treasures. We are certain, however, that there are architectural drawings which would have been noticed if time had allowed; had space but been granted. It was thought, perhaps, that such illustrations as those of Mr. Skipworth's and Mr. Aumonier's works would speak for themselves, but we might at least have expressed an opinion that these, regarded as drawings, are unusually beautiful. Mr. Aumonier is cer-

733). Mr. Francis Bedford is represented by a great many; and other distinguished artists and architects at least by a few.

As Liverpool is now a city, it is meet that she should have her cathedral before very long, and Fancy has played freely with the idea. The result of her taking to Art has been that we have here a good many dream-pictures of buildings that may one day, Galatea-like, be converted by prayer into stone.

It was suggested that the probable cause of the poverty in one respect of this Exhibition is the admission of the trade on condition

place as the Art Gallery, and those who are responsible for it should be jealous of its good name.

THE preparation of Danbury Palace for the reception of its new owner is being briskly carried out. The decorative portion of the work has been entrusted to Messrs. Watts and Co., of Baker Street, London, and Mr. J. Feast, of Haddenham, is engaged in fitting up the place with the newest sanitary appliances. The cost of the whole work will be something like £4000.



LIVERPOOL ARTS AND CRAFTS EXHIBITION. ST. MAGNUS CHURCH,
BESSINGBY, YORKS. TEMPLE MOORE, ARCHITECT.

ON THE TRAINING OF ARCHITECTURAL STUDENTS.*

By FRANCIS H. NEWBERRY,
Head Master, The Glasgow School of Art.

(Continued from page 94.)

HOW should proportion, under the generic term of the orders, be taught? Let us first find out how it is taught, and thus proceed from facts as they are usually received, and if the result be wrong, set ourselves to find out a remedy. The student usually commences with copying an extremely

BAD EXAMPLE OF THE DORIC ORDER

from a flat copy; for be it here noted there does not exist to my knowledge any set of drawings outside books on the subject that can fitly be said to be good representations of the orders. The drawing in question displays the Doric order dissociated from its place in the building, generally without the entablature, and represented as a couple of converging lines cut off at the top and bottom by horizontal lines, and possessing, as a rule, the added wrong and dishonour of having the middle part of the shaft bodily removed just where the entasis commences. This maimed and disfigured picture he sets to work upon with compasses and T square, and, having made a copy of it, is supposed to have a knowledge of the Doric order. By equally easy treatments the Ionic and the Corinthian are added to his store with an equal accession of nonsense in the place of knowledge, and the student ends his course of the orders with a head full of disorders. He may possibly learn, when treating these classic specimens in the manner just mentioned, that the Doric was

THE FINISHED EXCELLENCE OF GREEK ARCHITECTURE

or some other equally vague and misleading statement. That if this be the finish, where was the beginning, seems rarely to occur to him. It would seem to be tacitly assumed that Greece was one day without the Doric order, and the sun rose over that country the next to find it embellished with, and in full possession of, that surpassingly excellent specimen of human thought, execution, and taste. Now, this is not training the student, but trading on his gullibility. Does it ever occur to him that Architecture was once with-

out even the use of column; that roughly hewn and without any shapely quality at first, it became moulded upon by the thoughts of succeeding ages, and shaped by the hands of generations of workmen, growing in beauty of contour and in exquisiteness of proportion at each successive stage of development, until

THE SNOWY WHITENESS OF THE PARTHENON

displayed its subtle proportions and incomparable workmanship to a world which wonders yet only to lose, in the vast majority of cases, the principles there worked out in the beauty of the outcome? I quote from Wornum a similar analogy in respect of our use of the Greek honeysuckle. "The ornament is simple and beautiful, but modern imitators overlooking its principles have comprehended only the detail, assumed it to be an imitation, and have called it the honeysuckle ornament. Instead, therefore, of grasping the source of a thousand ornaments

equally beautiful, they have acquired but one, and half the classic buildings of modern times are covered with honeysuckles; bringing the whole Art of Greece into disgrace for its monotony and formality,

while there is scarcely a weed in England that might not with equal skill have been substituted for the honeysuckle with perhaps equal effect." So is it with the orders. Recur to first principles logically, work them out, and a personal share in the glory of the result is ours. Instead of that our student grasps the ends, and loses sight of the means which brought them about. The work of the orders was not thus accomplished by the original designers.

GENIUS MUST EVER PRECEDE RULES,

not follow upon them. When a Greek would design, he piled mass upon mass, added line to line, cut contour from contour, touched necessity with the golden finger of invention, and left the result for other and later generations to come with note-book and foot-rule and mathematically demonstrate how it was all accomplished. The Greek as an artist perished, leaving behind him the monuments of his skill and genius, and the revival of a love of classic forms in the middle ages brought with it a host of workers in the note-book and foot-rule, who measured up and gravely calculated and came to the result that thus and thus the Greek did, and lo! the outcome. Far be it from me to deprecate in the slightest the work of those glorious architects, foremost among whom comes the honoured name of Vitruvius, and later Palladio, whose efforts and learned treatises have made Classic Architecture

OUR MOST PRECIOUS HEIRLOOM.

and whose exertions have made it possible for us here in the frozen North to realise by our productions the full beauty of the ancient temples and edifices whose ruins yet stud the sunny land of Greece, although our eyes may never have gazed upon the originals. To them we in Glasgow owe the fuel which



LIVERPOOL ARTS AND CRAFTS EXHIBITION. ST. MAGNUS CHURCH, BESSINGBY, YORKS.
TEMPLE MOORE, ARCHITECT.

* A paper read before the Architectural Section of the Glasgow Philosophical Society.



LIVERPOOL EXHIBITION. NEST. PANEL OF TILES. DESIGNED BY CONRAD DRESSLER.

fired the genius of a Thomson, but were he still in our midst, he, I think, would be the first to confess that it was by no empty copying of dead details, but by a union of his thought with the thought of the Greek that his work was accomplished. And yet these details must be copied, but ever with the impression, that the whole which is created by a synthesis of these details, must ever be greater than the parts which analytically make up that whole, and that as all objects in Nature live because they obey great laws, so Greek Architecture will last as long as the world, because of its fulfilment of the laws and principles of beauty. This must be granted, and giving our student a note-book, I should at once start him to draw buildings. I would, however, provide him with a tape and foot rule afterwards—not while he is executing his drawing; and here comes in the good of his parallel and

CO-INCIDENT COURSE OF FIGURE DRAWING.

For I would make it a rigid rule that the student drew first and measured afterwards, and in this to follow in a building the same course of treatment he would adopt in drawing an antique figure. Who dreams of appraising the proportions of a figure with anything but the power of the eye? And if so, why cannot a building be treated in the same manner? Because, it may be retorted, how can you obtain proper plans and elevations unless you measure each part accurately? Or how can you instil the power of mathematical exactness into a man who never uses the means? It is the last thing I would care to do. Should he desire, after having made a correct drawing, to verify it, and to test it, and to set it down as an architectural production, because such is usually required, his doing so does not affect my position; for should he find the two drawings do not agree, it is less because he finds his measurements right, than that his drawing was wrong, and a weakness in his work found out. Did not the beauty of the Doric or Corinthian orders exist before it was found out that these shafts consisted in the perpendicular aggregation of a certain number of diameters? And do the

EXQUISITE PROPORTIONS OF A GREEK ANTIQUE

appeal to us with an added meaning because we are told it is seven and a half heads high?

But let us drive the matter straight home. An architect designing the proportions of an edifice to be constructed, draws and re-draws until such proportions please his eye and satisfy its demands. It is the work of his assistant to convert this artistic production into the mechanical necessities of a trade drawing, and all I would ask is that our student finding out, instead of creating proportions, adopt a similar course of treatment. I need not detail further. Having pointed out how I think proportion can best be learnt, it matters not whether the student copies the orders in this manner from some good book, or elects rather to do them from buildings where their proportions have been adequately realised; or, better still, leaves them alone till a later period. Draw first, and measure afterwards. I state the principle, and he should again attack a fillet or a temple, a Gothic leaf or a cathedral, with similar equanimity, for, be it remembered, that the proportions of an object, be it a crocket on a spire or a majestic cathedral, are best realised when, with every-day surroundings, they take their places in our common life and associations. The education of our student can never be complete without

A COURSE OF FIGURE DRAWING

from the antique and life, with its accompanying studies, anatomy, drapery, and figure composition. He will design best the proportions of what is lived in who best realises the form and proportions of him who inhabits, namely, man, the highest and most finished work of the great Architect. The application of such knowledge leads to figure composition, and, by its aid, the lines of the stiffly-posed Minerva in the centre of a Greek pediment may to him have a meaning equally with the curved lines of the dying Greek and Trojan soldiers in the angles, and the headless Ilyseus or Belvidere Torso, or the fragmentary Theseus all appeal to him as an embodiment of utility for architectural needs, combined with a beauty which excels those needs. Take, again, drapery. What study could be more beneficial to the student than this is, for realising the power and beauty of line, whether as the exponent of past and present action of the figure which it clothes, as in Greek Art, where motion was sought to be illustrated, or as in Christian sculpture, where, copied from the thick and coarse stuffs of the monkish dresses, hanging plumb down and sweeping the ground heavily, it became the exponent of a gravity and repose which, physical in its treatment, had yet a spirituality in its meaning. All these studies have in Architecture a mistress. To her the Greek gave the whole intellectuality of which he was capable, and for her the Christian wrought out and put into stone his highest symbolism; and a single glance at the figures as usually carved for, and applied to, our buildings to-day must convince us that not in vain will our student have learnt the use and abuse of sculpture in Architecture. Line plus proportion gives

MASS,

the last of the three divisions I made, and I cannot do better than preface the treatment of this, the greatest of the three studies, by a quotation from the "Lamp of Power," one of the Seven Lamps of Architecture as figuratively employed by Mr. Ruskin in his book under that name:—"And among the first habits that a young architect should learn is that of thinking in shadow, not looking at a design in its miserable liny skeleton, but conceiving it as it will be when the dawn lights it and the dusk leaves it; when its stones will be hot and its crannies cool; when lizards will bask in the one and the birds build in the other. Let him design with the sense of cold and heat upon him; let him cut out the shadows as men dig wells in unwatered plains; and lead along the lights as a founder does his hot metal; let him keep full command of both, and see that he knows how they fall and where they fade. His paper lines and proportions are of no value; all he has to do must be done by spaces of light and darkness, and his business is to see that the one is broad and bold enough not to be swallowed up by

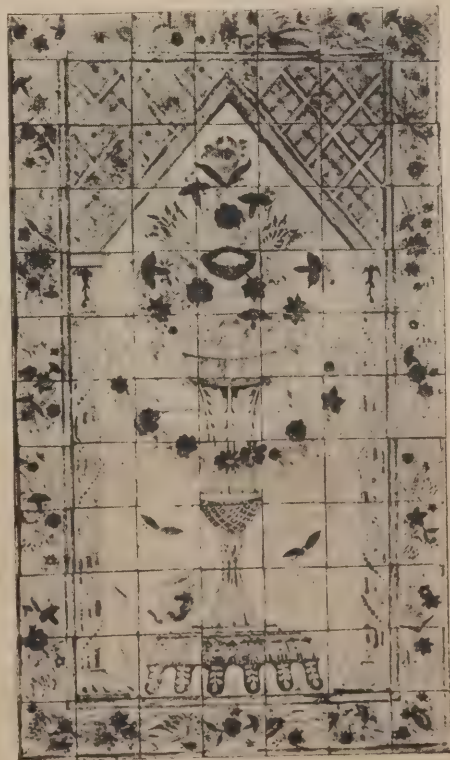
twilight, and the other deep enough not to be dried like a shallow pool by the noon-day sun." Now

AN ARCHITECT IN HIS DESIGN

has this to consider, more than any other class of designers, that he has to deal with length, breadth, and depth. A painter's information, while it should embrace an abstruse knowledge of the four sides of a human figure, with all their various positions and foreshortenings, can but express itself by a display of usually not more than two sides of the figure he is designing, while the building by an architect has to present itself four-square to all the winds of Heaven. The closest analogy to his study of a building is met with in that of a sculptor's modelling of a figure, and this power of grasping mass can best be obtained by doing as does the sculptor, namely, by going through a course of modelling, and by these means to absolutely create a light and shade which may be all his own, as opposed to the imitation of a light and shade obtained by the execution of a drawing on a flat surface. Architecture in this respect may roughly be divided into two sections, one in which the forms are drawn with light upon darkness, as in Greek sculpture and pillars, and the other in which they are drawn with darkness upon light, as in early Gothic foliage. This phase of an architect's education was, I remember, strongly insisted upon by the late Mr. J. P. Sedding in the criticism of some modelled designs submitted to him by a class of students in Architecture at the Lambeth Technical School. The subject was an Italian doorhead. After emphasising the need in architectural students

IN GRASPING THE SOLIDITY

and not the superficiality of any subject they may be set to design, he pointed out that the picture of the result should ever accompany the progress. And this should be so. Students should be taught to imagine a building not as bathed in the artificial light of an architectural sun, which always casts its rays in angles of 45° from over the left shoulder, but to imagine their buildings as they are travelled across by the sun, and as having its own will upon their productions, and then to look at them again with the sun gone, and the skies grey and cold, and the rain pelting, or the snow falling, or the fog enwrapping their members, and to have pleasure in any of these



LIVERPOOL EXHIBITION. RABBIT. PANEL OF TILES. DESIGNED BY CONRAD DRESSLER.

imaginary aspects. "Architecture is the Art which so disposes and adorns the edifices raised by man for whatsoever uses that the sight of them contribute to his mental health, power, and pleasure." So says Mr. Ruskin again, who, I believe, does not usually take either health, power, or pleasure, mental or otherwise, in walking the streets of any of our large cities, when the rain is falling, or the fog is descending. Venice, in the sun, is his ideal.

THE HEAVEN OF A LIGHT AND SHADE

which architects strive after, but are dogmatically told they may not attain to. Still, the attempt is worth the making, although we are positively assured by that author, if his dictum carry any weight, that the dead past burdens too heavily the young giant of the present for us ever to hope to cast him off. Mr. Ruskin may be likened as sitting in the tree bearing the golden fruit that approaches and recedes from the lips of Tantalus. Here are some of his sentiments on Mass:—"What a contrast between the pitiful little pigeon holes which stand for doors in the east front of Salisbury, looking like entrances to a beehive or a wasp's nest, and the soaring arches and kingly crowning of the gates of Abbeville, Rouen, or Rheims, or the rock-hewn piers of Chartres, or the dark and vaulted porches and writhed pillars of Verona. Of domestic Architecture what need is there to speak? How small, how cramped, how poor, how miserable in its petty neatness is our best; how beneath the mark of attack, and the level of contempt, that which is common with us. What a strange sense of formalised deformity, of shrivelled precision, of starved accuracy, of minute misanthropy have we, as we leave even the rude streets of Picardy for

THE MARKET TOWNS OF KENT.

Until that street Architecture of ours is bettered, until we give it some size and boldness, until we give our windows recess and our walls thickness, I know not how we can blame our architects for their feebleness in more important work; their eyes are injured to narrowness and slightness. Can we expect them at a word to conceive and deal with breadth and solidity? They ought not to live in our cities: there is that in their miserable walls which bricks up to death man's imagination as surely as ever perished forsworn nun. An architect should live as little in cities as a painter. Send him to our hills, and let him study there what Nature understands by a buttress, and what by a dome. There was something in the old power of Architecture which it had from the recluse more than from the citizen. The buildings of which I have spoken with chief praise rose, indeed, out of the war of the piazza and above the fury of the populace: and heaven forbid that for such a cause we should ever have to lay a larger stone or rivet a firmer bar in our England! But we have other sources of power in the

IMAGERY OF OUR IRON COASTS

and azure hills; of power more pure nor less serene than that of the hermit spirit which once lighted with white lines of cloisters the glades of the Alpine pine, and raised into ordered spires the wild rocks of the Norman sea; which gave to the temple gate the depth and darkness of Elijah's Horeb cave, and lifted out of the populous city grey cliffs of lonely stone into the midst of sailing birds and silent air." Out of this mountain of seeming exaggeration comes forth the mouse of truth, and the architectural student can, by adding to his store of mental knowledge the manipulative skill of modelling, approach closer to that heaven-sent and born genius, the artist, who is, I fear, quietly assumed as being born educated, and therefore requiring none of the dull drudgery of the hard work that usually falls to the lot of less blest and worse endowed mortals. What the student should model matters little. He may make the study a vehicle for knowledge of

ARCHITECTURAL ORNAMENT AND FIGURE,

but it suffices to state that he obtains a power over the material so that he may roughly conceive a form, and with it a light and shade.

He may perfect his studies as time and opportunity permit, and if he fail to grasp a cathedral front he may realise the play of light and shade in a boss. With a knowledge of Line, Mass, and Proportion my subject may fitly end, but I would venture on your patience by briefly touching upon very debatable ground, namely, whether or not a student, whilst going through an academical course of instruction, should design? I answer the question in the affirmative, but would qualify it by stating that the design should be entered upon not as an end to, but as a means of knowledge, not objectively but subjectively. For I have found that work is ever the more heartily entered upon, and a greater good ensues, if the student have an end in view, as opposed to the desultory obtaining of information with a negative purpose. You will notice I have omitted all reference as to how the student is to obtain

A KNOWLEDGE OF THE VARIOUS STYLES,

which from Egyptian down to Victorian Gothic or Waterhousian Byzantine have claimed buildings as belonging to them. I would submit that a knowledge of these various styles and their epochs may be obtained by the student designing buildings and construction in any and every particular style, so that he may interestedly obtain a knowledge of and insight into their several peculiar qualities, their relevant constructions, their respective uses, and their particular ornaments or ornamentation. The restoration of ancient temples as done in many of our architectural schools forms a very good illustration of the idea I propound, and the architectural student, as subjective creator, may well, by his adaptation of the exigencies of any given style, fitly precede and lead up to the architect conceiving an original building in a style. This is what I instanced very early in this paper as accepting the past for the sake of the future. The styles are mines whose treasures are endless; and when it is grasped that the builder of Glasgow Cathedral did not invent Gothic, it will be seen that a high degree of celebrity may accrue to the artist who works on

THE MANNER OF HIS FOREFATHERS.

In reading the lives of the great dead artists, one cannot help being struck with the vast amount of knowledge, practical and applicable, they possessed of subjects which we are prone to consider as lying outside the relevant education of an architect. Thus Giotto's frescoes adorn the edifices of a city, one of whose chief architectural beauties is the tower he designed. Raphael's Pandolphini palace most beautifully realises our conception of architectural beauty and proportion, as do his frescoes fill us with the highest human conception of form. Brunelleschi, whose dome rivals Giotto's tower as the embellishment of the Cathedral at Florence, was a sculptor and a goldsmith. Leonardo da Vinci enumerates the making of designs of buildings for public or for private purposes and the executing of works in sculpture as among his accomplishments, and professes in painting to do, what can be done, as well as any man, be he who he may, assertions richly proved by his works yet among us; and in Michael Angelo we have combined the greatest powers of painter, sculptor, and architect in one as yet the possession of any single man that has lived among us. If I would seem to go out of my way in adducing these facts, which may justly not appear patent to the subject of this paper, I have done so purposely to throw light on a side issue which, though not distinctly relevant to its training, may yet have a great power for good both upon him and it, namely, his reading. Striving to be cultured men so that they may fitly take the places in the social life of the world which their powers entitle them to is not specially a quality which pertains only to architectural students, but a certain section of his spare time should be devoted to reading the lives of the great artists, so that his mind may be imbued by such means with their ideas and desires, while his pencil is busily employed with the practical study of their conceptions. Napoleon is credited with

the dictum, "Every soldier carries the bâton of a marshal in his knapsack." He, however, did not wait for the event, but worked for it. The drudgery of marching and counter-marching, and sleeping with the guns, had to be gone through, and gone through in earnest, before the bâton of the marshal was placed in his hands. But he knew its powers, and wielded them the better in the ordering of battalions and the placing of men, for that he had at one time carried the knapsack which figuratively held it. So the architect may command the dull stones of the earth to arrange themselves in ordered masses, and make beauty to live in undying splendour on our walls; may by his proportions lead the thoughts, and by his colours tinge the imagination of worshippers in a temple, of the earth earthly, so that they may catch a spiritual glimpse of a building not made with hands, and all this by a knowledge and use of powers of the bâton he wields—a piece of pencil.

KEYSTONES.

Two beautiful windows have been presented to Frankton Parish Church.

The parish church of Claydon has just been adorned by the insertion at the end of the south transept of a memorial window.

Mr. HENRY TEAGUE, who has occupied the position of water engineer at Lincoln for the last fifty years, has tendered his resignation to the Corporation.

In connection with the proposal to build a cottage hospital at Dundee, Mr. Lake Falconer has undertaken to supply designs and superintend the work of construction gratis.

Good progress has been made with the erection of the new Technical Schools at Devonport. It is expected that the Art Department will be ready for occupation in September.

The "kiosk" system does not commend itself to the Highway Committee of the Blackburn Corporation, who have declined to entertain an application for the erection of these structures in the streets.

It has been decided by the Perth School Board to erect a new school in place of the Central District School, with an entrance from High Street, at a cost of £7000, and capable of accommodating 700 pupils.

MR. WALTER HANSTOCK, architect, Leeds and Batley, was placed first in a limited competition for chapel and Sunday schools for the Methodist Free Church, Armley. The successful competitor will carry out the work.

GLENBORODALE CASTLE, so delightfully situated on the north shore of Loch Suinart, and built about forty years ago by Mr. Dalgleish, has been razed to the ground, and the site is being cleared for the new foundations.

A SITE has been secured in the Balham Road, with a frontage of 80ft. and a depth of 150ft., upon which Mr. W. G. R. Sprague will shortly erect a theatre. The house is to be named the Royal Duchess Theatre.

A CHAPEL has been added to St. Matthias's Church, Stoke Newington, as a memorial of the late William Henry Monk, Mus. Doc. The chapel is at the east end of the south aisle of the church. The altar cross has been enriched with some old family jewels.

THE statue of the late Judge Hughes will not be erected at Rugby until towards the end of the present year. The commission for the work has been entrusted to Mr. Brock, R.A. The cost of the statue, which amounts to £1000, has already been subscribed.

SHEERNESS Urban District Council has applied to the Local Government Board to sanction a loan of £13,700 for the construction of a new iron pier in place of the wooden structure which was built in 1833, and partially destroyed in the gale of November 29th.

THE new Board Schools at Bronyfael, Carnarvonshire, built from the designs of Mr. Rowland Ll. Jones, Carnarvon, at a cost of £6000, are situated at a high altitude among the Cambrian group of mountains, overlooking Carnarvon Bay and a vast expanse of country and are in this respect probably the highest schools in the kingdom.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
March 16th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slabs; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic utilities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

It would appear as if some of the expenditure of a million a year upon national Art education should be extended to the classes whose walk in life is considerably above that to which at present it is applied. We note, for instance, that the doors of the new house in Piccadilly, which the Isthmian Club have just taken, have actually been grained in imitation of goodness knows what kind of wood! We imagined that this style of Art was now only confined to the third class carriages of railway companies.

SINCE the memorial from architects and artists in favour of the retention and restoration of the Greyfriars Church was sent to the Aberdeen Town Council and to the University Court, the names of Mr. R. Rowand Anderson, LL.D., H.R.S.A., architect, Edinburgh, and Mr. Alfred Waterhouse, R.A., LL.D., London, have been added to the list of signatories. Dr. Anderson was the architect for the McEwan Edinburgh University Hall, and was engaged in the restoration of King's College, Aberdeen.

IN the course of a paper read before the Liverpool Architectural Society, Mr. F. E. P. Edwards drew attention to the fact that no permanent memorial exists in the city of Harvey Lonsdale Elmes, to whom we owe St. George's Hall. It is not unlikely that a movement will be made, sooner or later, to remove from Liverpool the reproach of the non-existence of such a recognition of the genius of Elmes. Of course, the suggestion may be made, as in the case of Christopher Wren and St. Paul's Cathedral, that St. George's Hall is the best monument of its designer; but surely something in the shape, say, of a tablet, should be placed in the building to bring continually to mind the personality of a great artist who died all too soon.

THE Royal Academy will shortly proceed to dispose of a Turner annuity of £50 a year to a necessitous artist. The eighty-eighth dinner of the Artists' Benevolent Fund, which took place a few days ago, showed how insufficient artistic co-operation is to meet all the demands of a benevolent nature which come before it, for the funds only allowed of thirty-five widows and six orphans being assisted. Mr. Prinsep, who presided, narrated some interesting facts to combat the popular idea that the pursuit of an artistic profession was no easy one; and he quoted instances from two of the most talented artists which the Victorian era has seen—namely, Leighton and Millais. Leighton's pictures were, to the end of his life, only the outcome of enormous and sustained labour. Millais, even in later years, was frequently so worried with his work that he had a good cry over it.

THE story of the celebrated Lowestoft china is most interestingly told by a writer in the Estates Gazette, on whose authority we learn that ceramic art at Lowestoft had quite a romantic origin. The earliest dated specimens of Lowestoft pottery, now so highly prized by connoisseurs, is 1762, and just prior to this year tradition says a Dutch sailor, sole survivor from a wreck off the east coast, was hospitably cared for by a Lowestoft gentleman. While his protégé was with him this gentleman took him to a meadow on his estate, where workmen who were digging a trench came to a bank of white earth. This the Dutchman at once recognised as the kind used in Holland by makers of earthenware and porcelain at Delft. The story goes on to relate how, as the result of this information, the fortunate landowner realised £10,000 in eighteen months from the sale of the white earth, and in 1756 porcelain works were established at Gunton Hall. A little later a factory was set up in Bell Lane, Lowestoft, where examples of porcelain were produced which, for the extreme minuteness and intricacy of pattern, beauty of finish, and nicety of pencilling, almost microscopic in character, far surpassed any contemporary ceramic work. Then a French artist was engaged, from whose hand came the exquisite floral patterns that adorned the Lowestoft ware, then chiefly turned out in the form of punch bowls and tea and coffee services. The Lowestoft works were closed in 1804 owing to the severe competition of the Staffordshire potters.

THE following is taken from Punch:—For architects.—Q. Why should the House of Lords always uphold the decisions of the Ecclesiastical Courts? A. Because it is only natural that the Court of Arches should be supported by its Piers.

SINCE last September the Church of St. Clement Danes in the Strand has been undergoing restoration, at the cost of the rector, who has voted the sum of £5750, realised by the sale of Jubilee seats, to the work in question. The ceiling and woodwork, which were quite dark and dingy, present now quite a bright and light appearance. The ceilings of the nave and aisles have been chastely decorated in buff and blue, relieved with gold, and the general tone of colouring of the rest of the church is in harmony with these tints. The woodwork, stripped of its numerous coats of varnish, looks as if it were new, and the exquisitely carved pulpit of Grinling Gibbons could not have looked fresher and sharper when it left his hand. The fine organ, built in 1690 by Father Smith, is to have the two ugly side additions removed, and replaced by carved wainscoting, more in harmony with the body of the instrument. The chancel is to be elaborately decorated, and adorned with a rich stained glass window. The altar is to be raised by two steps, to be 9in. in height each, instead of 6in., which is said to be not in harmony with ecclesiastical law, while, among some other changes, electric light is to take the place of gas.

DURING the progress of the work two singular discoveries have been made. The central oak doors, when relieved of their thick coatings of paint, and grained work and varnish, have been found to have their panels literally riddled with bullets and small shots, much of which remains in the wood. The suggestion is that at some time the church must have been attacked by an armed mob. The other discovery is of two large bricked-up doorways in the front stone wall with the hinges of the doors still remaining, whose existence was never suspected. They were found on removing some wainscoting which has for many years masked them, and were evidently early entrances to the church, which, as nearly everyone knows, was built by Sir Christopher Wren, in 1682, on the site of one that had stood there hundreds of years, more than 700, perhaps, from the present time. The discovery was made during operations to enlarge the vestry and the choir vestry by bringing the gallery stairs down into the body of the church. All the pews have been

lowered by some 15in. from the bottom, and among those that have thus suffered is Dr. Johnson's pew in the gallery near the pulpit. Unlike the lower pews on the ground floor, which are of oak, and Georgian, the pews in the gallery are as old as the church, and of deal or pine, and they have been painted and grained to match the other woodwork.

IN the course of repairing the Church of San Giovanni e Paulo, in the vicinity of the Coliseum, the discovery has been made of a most perfect and complete "balineum" or ancient Roman house bath. The "balineum" consists of two rooms floored with exquisite black and white marble squares; and in one of the chambers is a semi-circular opening beneath which is the bath of terra-cotta. The furnaces for heating the bath have been found in admirable preservation, as well as a number of small subsidiary vessels; and the whole is a magnificent example of the Roman patrician's arrangements for what was considered an indispensable convenience in those days. The fact of the "balineum" having been discovered under the Church of San Giovanni e Paulo, which dates from the fourth century, has given rise to a plausible surmise. The church itself was built on the site of the house occupied by St. John and St. Paul, who won a martyr's crown in the reign of Julian the Apostate; and it is conjectured in consequence of the existence of the "balineum," that the saints must have found a friend in the converted patrician who gave them one of his residences as a shelter. Rome as a field for the explorer should still be rich. When the project of lighting the catacombs by electricity is carried out, perhaps something very curious may be found in the remote recesses of that vast labyrinth.

"ONE OF THE PUBLIC" writes to the City Press as follows: "Will you permit me to call the attention of your readers to a private Bill, promoted by the London County Council, which, under the specious title of a 'Bill to Amend the London Building Act, 1894,' has for one of its objects the confiscation of land abutting on old streets, including those in the City, thus directly affecting the private interests of the owners of every freehold or long leasehold within the metropolitan area? The clause, stripped of its verbiage, proposes that in rebuilding on the side of any existing street the front wall of the building, or, if there is a forecourt, the boundary railing, or fence, shall be set back to a distance of 20ft. from the centre of the roadway. If such a proposal is carried in Parliament, the owner of the land will be compelled to give up (from 1ft. up to probably 15ft. in depth) valuable frontages for which he is to receive no compensation. Parliament rejected a similar proposal put forward by the defunct Metropolitan Board of Works, and again by the London County Council in 1894, and property owners, whether freeholders or leaseholders, should at once take action to prevent such a measure from being now carried. The time has lapsed for lodging petitions against the Bill; but, as it has been unexpectedly sprung upon property owners, every effort should be made to ensure its defeat. To do this, pressure should be brought to bear upon members of Parliament with a view to this dishonest measure being rejected. It may be argued that 40ft. streets are desirable, and even necessary, in the public interests; but, even so, private interests should be considered, and provision made for compensation."

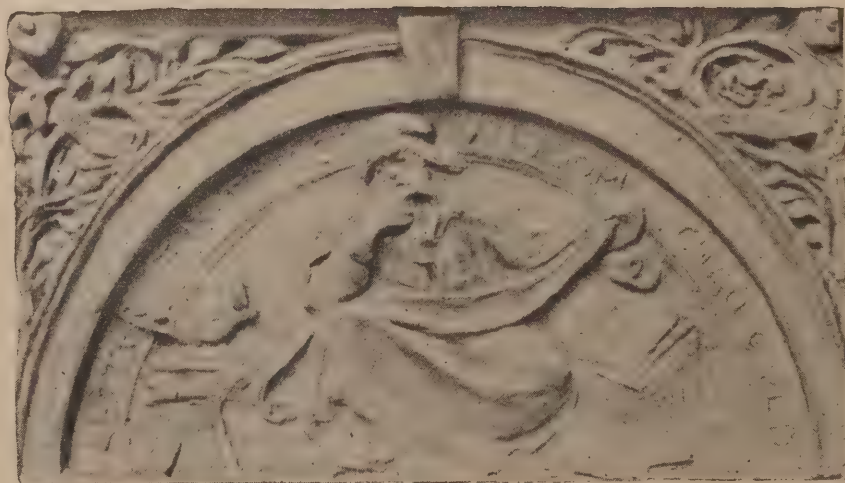
THE excavations at Hiracl, Bangor, are proceeding under the superintendence of Mr. P. Shearson Gregory, the architect of the estate. The latest discoveries include a portion of an old roadway, splendidly made of seaboulders and about 9ft. broad, running north and south, a portion of a shell walk consisting of a pathway covered over with sea shells such as were common in old cemeteries; the remains of old walls, certain peculiar stones, &c. In a closer examination of the soil Professor White has come to the conclusion that the site of the finds has at one time been a sea beach.



LIVERPOOL ARTS AND CRAFTS EXHIBITION. STENCILLED FRIEZE



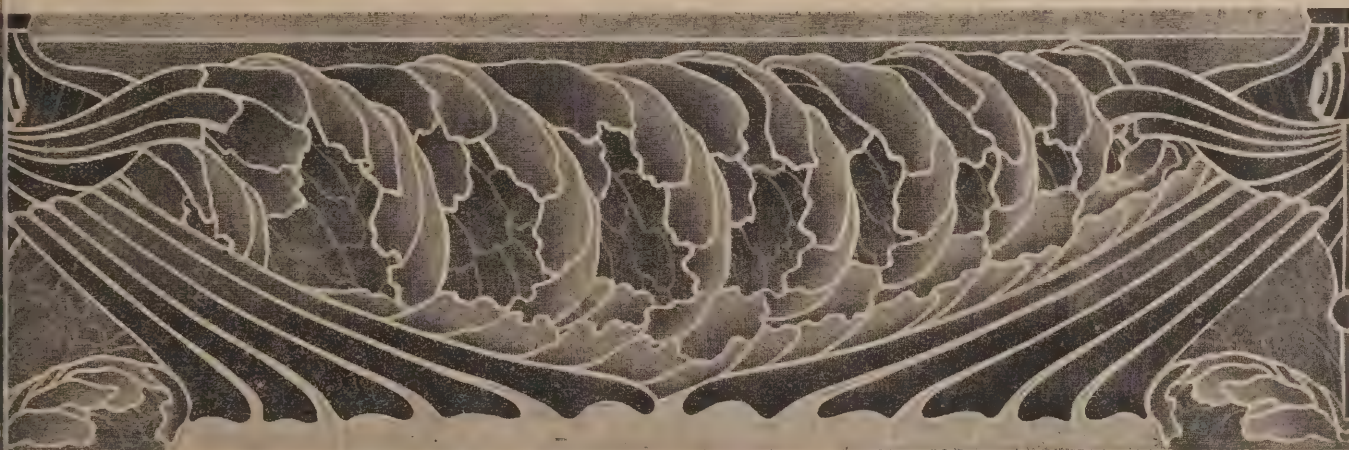
LIVERPOOL ARTS AND CRAFTS EXHIBITION. THE "PEONY SURFACE"



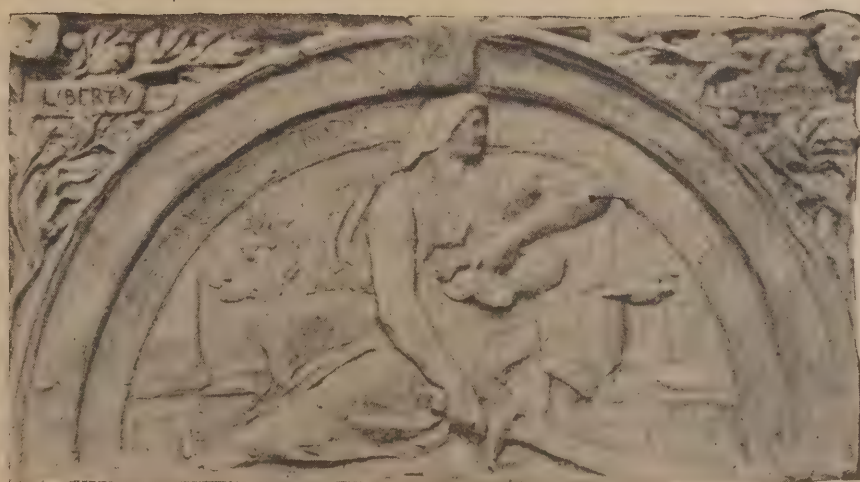
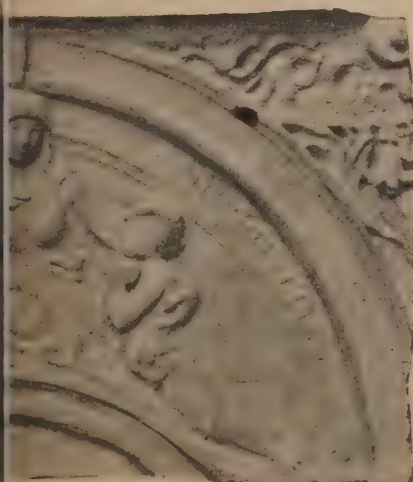
LIVERPOOL ARTS AND CRAFTS EXHIBITION. PREPARATORY SKETCH MODELS



FOR THE HOUSE OF PROFESSOR HELE SHAW. BY R. ANNING BELL.



RIEZE. STENCIL EXECUTED ON WHITE JUTE. BY ALEXR. ROTTMANN.



E A DECORATION IN A PUBLIC HALL. PART OF A SERIES. BY F. W. POMEROY.

A SECOND find of great importance has to be added to the discovery of the tomb of Osiris in Egypt. M. Amélineau, to whom the first discovery was due, now affirms that in the course of his recent excavations he has acquired the positive certainty that the tomb of Set, the god of Evil, and of Horus, the personification of the Sun, is in the same necropolis of Om-El-Ga'ab at Abydos. The observations made by M. Amélineau leave no doubt with regard to this great discovery. Thus we have now the tombs of the three last god-kings of the second of the divine dynasties, which dates back 10,000 years, or one hundred centuries.

"In these days, when so much attention is given by the London County Council to the provision of sufficient exits from theatres, concert-halls, and other places of amusement," writes a correspondent, "I think that body might with advantage to the public turn their consideration to the means of exit from some of our crowded London churches. A few weeks since I visited the City Temple on a Sunday evening to hear the Rev. Dr. Parker. The huge building was packed with people in every available part, and when all the pews had been filled, campstools were produced and late comers provided with seats in the various aisles and steps leading to the doors, thus blocking every possible passage. From the seat which I occupied in the gallery I think it is no exaggeration to say quite ten minutes elapsed before one of the (so far as I could see) only two doors could be reached. Surely the danger of fire is as great in a church as in a concert-hall."

THE Lord Mayor and Sheriffs have consented to pay a State visit to the Northampton Institute, Clerkenwell, on the 18th inst. for the purpose of inspecting it and formally declaring it open. The buildings and equipment have, up to the present, cost over £80,000, and the expenditure upon the latter is not yet complete. In addition, the land, over one and a quarter acres, given by the late Marquis of Northampton, is estimated to be worth not less than £25,000. The Institute is a branch of the City Polytechnic, and is situated in one of the busiest parts of the Metropolis, immediately north of the City boundary.

It is to be hoped that the answer given by the First Commissioners of Works, in the House of Commons a few nights ago, to a question concerning the safety of the National Gallery buildings really does mean that the Government officials are alive to the risks that are daily run by the institution in Trafalgar Square. So long as the gallery is hemmed in by more or less dangerous buildings, and is actually in contact with a barrack and a row of shops, the chance of a serious catastrophe is always present. That some of this adjacent property has just been purchased by the Government, and more is to be acquired as opportunities offer, is certainly good news; but it would be more cheering to hear that steps were being taken to hurry on these measures of precaution.

A VERY important appointment will before long be vacant at South Kensington. The extension allowed to Mr. Thomas Armstrong, the present Art Director of the Museum, expires directly, and already the claims of the men who are best fitted to succeed him are being discussed. It is to be hoped (says the *Globe*) that, for once, a really appropriate choice will be made, and that an artist fully worthy to be entrusted with the control of the Art schools as well as the Art directorship of the museum will be appointed. But it is equally desirable that, if such a man can be secured by the Department, his hands should not be tied by ridiculous regulations, and that his usefulness as an administrator should not be hampered by the interference of officials not in sympathy with his views.

THE Metropolitan Asylums Board, at its recent meeting, considered a lengthy report from the Brook Hospital Committee with reference to the expenditure on the Brook Hospital. The original estimate for the hos-

pital was £194,810, and the amount of the tenders accepted by the managers in respect of its erection was £218,171 16s. 2d., whilst the amount which the managers were asked to pay in settlement of the contractor's final claims was £268,507 11s. 2d. The Committee reported that of those two amounts the architect was only responsible for the supervision of contracts amounting to £210,018 0s. 4d., in settlement of which he was prepared to certify for £259,401 15s. It would thus be seen that the difference between the total amount of the accepted tenders (£210,018 0s. 4d.) for which the architect was responsible and the total amount for which he was prepared to certify in settlement thereof was £49,383 14s. 8d., of which, however, £10,723 appeared to have been sanctioned by or reported to the Board, leaving the balance (allowing for a saving of £198 8s. 8d. on certain contracts) of £38,659 3s. 4d. to represent the value of work ordered, on the architect's individual responsibility, over and above the value of the works for which tenders were accepted by the Board. Mr. Aldwinckle, the architect, was blamed by the Committee for having under-estimated the amount of work necessary in many cases, and for having made no provision in his original estimate for many incidental matters. In connection with the foundations he had estimated about half the work that was really necessary, and that half he had estimated at about half the cost. His estimate for the foundations was £5000, and there was an extra of over £19,000, bringing up the total cost to £24,000.

THE conclusions of the Committee were that, influenced by the desire for expedition which actuated managers, officials, and architect alike, at a time when additional hospital accommodation was urgently needed and clamoured for, the architect did not give that careful attention to the preparation of the specification which a work of such magnitude demanded. They were quite prepared to admit that in the Brook Hospital the managers possessed an admirably arranged and well-built establishment, and, so far as they were able to judge, had good value for their money. All the evidence, moreover, showed that, in his final adjustment of contractors' claims, the architect appeared to have worked in the best interests of the Board. That he failed to report to the managers from time to time either the extra works which he was ordering, or the cost thereof, was, they thought, the gravest feature of the case. On the other hand, it should be borne in mind that the resolution of the managers, which forbade an architect to permit any deviation from a contract for building works, where any such deviation was expected to exceed the sum of £25, was not adopted by the Board until October 26th, 1895, at a time when the Brook Hospital was practically completed. They recommended that the contractors' claims for delay in connection with the erection of the Brook Hospital, as finally adjusted by the architect, be approved, and cheques drawn accordingly; and "That renewed application be made to the Local Government Board for an order authorising a further expenditure on loan, in respect of the erection, equipment, &c., of the Brook Hospital, of the sum of £100,000 in lieu of the sum of £75,000 applied for on October 10th, 1896." The debate on the report was adjourned, Mr. John Lobb giving notice of a resolution to ask the Local Government Board to institute a searching inquiry.

MR. GEORGE GOULD is having a gold-plated staircase and balcony built in a house now being erected for him in Lakewood, New Jersey. The design chosen is after the style of Louis XIV., and it is described as "simple, chaste, and light," garlands and torches being the chief ornaments used, while the stairs terminate not in the ordinary newel post, but in a ram's head with curving horns. The staircase will, when completed, cost many thousands of dollars.

No more gratifying testimony of the highly educative influence exerted by the Nottingham Municipal School of Art and Design could be desired than that which is apparent in the

annual exhibition of the students' works at the Castle Museum and Art Gallery. Whether regarded from an artistic or utilitarian standpoint, the collection is eminently creditable. Artistically, the productions this year are of a high standard. In breadth of conception, and conscientious treatment, they mark a distinct advance upon previous years, and foreshadow ample promise for the near future. Genuine hard work and indomitable perseverance are noticeable in every branch, and a very large proportion of the exhibits are instinct with a cultured, artistic appreciation. In Architecture, Mr. F. W. C. Gregory takes a pronounced lead. His work is admirable in the extreme, and he contributes several ornate designs, in which the minute details have been carefully preserved. He secured a bronze medal for a drawing for an institute, and close by are his designs for the new entrance gates to the School of Art, together with the working drawings. Mr. H. H. Goodall's measured drawings of the screen at Southwell Minster have already gained for him a bronze medal at South Kensington, and a design for a town club was selected for the National competition. Mr. Gregory being ineligible, the first prize goes to Mr. A. W. Bradshaw, who contributes a drawing for a public library, together with a ground plan.

IN the year 1892 it was thought advisable to make an architectural survey of All Hallows, Barking, and the late Mr. J. L. Pearson, R.A., who made the examination, discovered that a great deal of work would have to be done in order to secure the church to future generations. Since that date the repairs have gone on at intervals as funds have allowed. The accumulated earth has been removed from around the walls, and the walls themselves, with their buttresses and parapets, have been for the most part repaired. On the north side the windows have been reglazed, and the stonework renewed where necessary. A school-room has been erected, and a new oak roof placed upon the north aisle and also on the vestry. In addition, a choir vestry has been fitted up, and the chancel portion of the central roof has been restored in accordance with the first design. The total cost of these undertakings has been about £6000. Still, much remains to be done, and it is estimated that about £3000 will be required to complete the thorough restoration of the church. Parts of the building are probably more ancient than any other structure in the metropolis. No church in the City contains such beautiful wrought iron work as the handrail of the pulpit and two of the sword rests—those of Lord Mayors Bethell and Chitty—upon the screen of the choir.

At the Sheriff's Court, Red Lion Square, Holborn, a case of importance to owners of property along the lines of the new electric railways has been heard by Mr. Burchell and a special jury. It was a claim by the trustees of the late Frederick J. Blake against the Central London Railway Company for £539 for the purpose of repairing the residence No. 2, Marlborough Gate, Hyde Park, which is alleged to have suffered damage by subsidence due to the works of the railway company. It was alleged that the house in question had been structurally injured by the works of the company, either primarily or by reason of the bursting of a water main, owing to the tunnelling operations for the company's new line from the City to Shepherd's Bush. On behalf of the railway company, Sir Douglas Fox, Mr. Cooper, Mr. George Weston, and others gave evidence, and it was contended that the system of tunnelling with the Greathead shield prevented any possibility of injury to adjacent buildings, and that the subsidence must have been caused by the bursting of the water main owing to internal pressure. The jury returned a verdict for the railway company, on the ground that the damage was done by the bursting of the water main, for which the railway company had not been shown to be in any way responsible. It was agreed that the claims pending in respect of adjoining houses should be governed, as regards the question of liability, by the finding of the jury in this case.

Surveying & Sanitary SUPPLEMENT.

MARCH 16TH, 1898.

Practical Carpentry and Joinery.*

By GEO. ELLIS.

(Continued from page xvii.)

CENTRES for groined vaulting are made in two ways. If the vaulting is not of great span, a barrel or continuous centre is made for the main vault long enough to run about 2ft. on either side of the intersecting vault. The centre for the minor vault is then made with the lagging overhanging the end rib, is then brought up to and fitted to the main centre by scribing, the lagging being either nailed direct to the cross lagging, or a thin fillet bent round underneath and fixed, to carry the ends. For large vaults this method would not provide strength enough at the groins, and a different one is adopted. A rectangular frame of the width between the side walls and of convenient length is constructed, two similar frames for the transverse vault are fastened underneath this, and ribs of the requisite curvature set up at each of the four ends, and

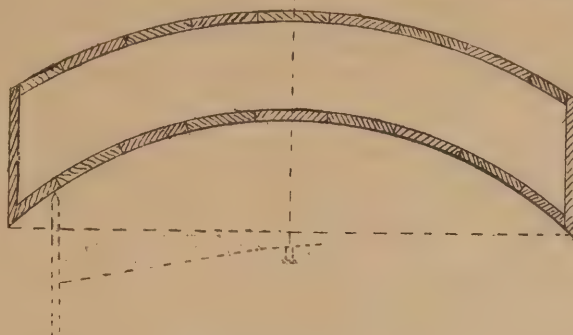


FIG. 85. PLAN OF COMPOUND CENTRE.

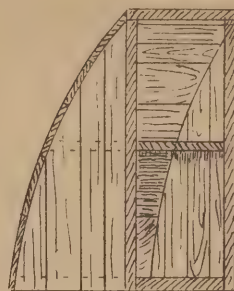
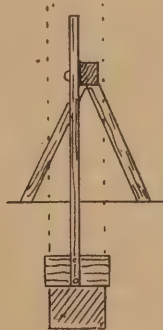


FIG. 86. SECTION.

plan curve, and upon each edge of these narrow laggings are nailed vertically, a trifle longer than the rise of the arch; the bottom rib is at the springing line, the upper one half-way between it and the crown. When the side lagging is fixed, a rod set to the radius of the arch, less the thickness of the horizontal

lagging, is mounted on a temporary stretcher at the springing, and swept round the upright lagging at each side, a pencil being held at its square end, as indicated in the drawings by dotted lines. The boards are cut off to the line drawn, and the horizontal laggings nailed on their ends (see section, Fig. 86). Cement or concrete inverts formed as cradles to receive brick inverted arches are struck as shown in Fig. 89. A piece of quartering is laid across the opening



SECTION.

and propped up at a convenient height; a "trammel" fashioned like a T-square is hung from it as shown, the distance from the edge of stock of the square to the fixing-pin being equal to the radius of the extrados of the arch required. The earth is roughly shaped to the sweep and rammed. Then the concrete is filled in and the "square" swept backwards and forwards till the required outline is obtained. A similar arrangement is in use for marking the bricks for cutting, in sewers.

In Fig. 90 I give a method of finding the

centre of any arch when span and rise are given, for the purpose of striking out the ribs. Draw the springing line A B, and bisect it by the perpendicular C E. Upon this line set off the given rise, draw a line from this point to one end of the springing, bisect this line, and the intersection of the bisector with the perpendicular will give the centre of the arch required. With a segmental arch of wide springing and small rise great difficulty will be experienced in finding the centre, and when found in obtaining a rod long enough to describe the sweep. A method of accomplishing the object without the use of a radius rod is shown in Fig. 91. Set out full size on a board or floor, the span and rise in the centre, drive in three nails, one at each end of the springing line, and one at the crown. Procure three light battens, about 2in. by 3in., arrange them against the nails in the form of a triangle, as in the figure. Of the two forming the sides of the triangle, one need only reach from springing to crown, the other must be twice the length, the third is merely a brace to keep the others in position. Nail or screw them where they cross. To describe the curve, withdraw the nail at the crown, and insert a pencil in the V formed by the crossed battens; move the triangle round, keeping it firmly pressed up to the two nails at the springing, and one half the curve will be drawn. For the other half turn the apparatus over, and repeat the process.

An easy method of setting out an ellipse, when a properly constructed trammel is not at hand, is shown in Fig. 92. Draw the two axes perpendicular to each other, as A B—C D. Let A B be the span, and C D the rise required. On any thin rod set off the rise and half the span—in other words, the semi-minor and

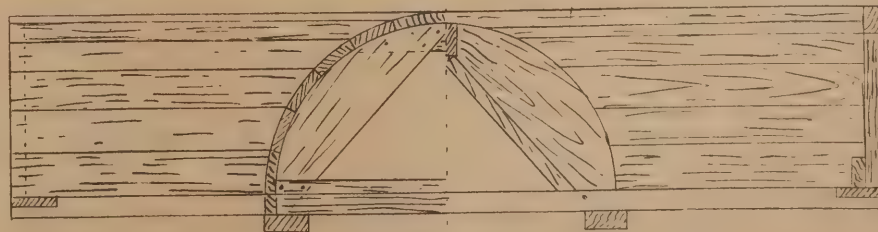


FIG. 87. SECTIONAL ELEVATION ON A-B OF GROIN CENTRE.

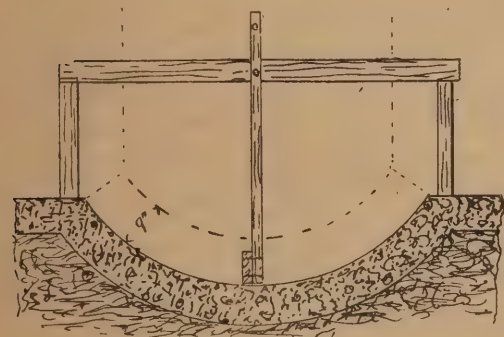


FIG. 89. CENTRE FOR AN INVERT ARCH.

also two intersecting ones at the diagonals, or plans of the groins. These latter will be of elliptic curvature, the major axis being equal to the diagonal of the span, and the minor axis equal to the rise of the arch. These groin ribs will require "backing" in the same manner as a hip rafter; when the two ribs are cut to the outline, use one as a mould to mark the backing of the other. Keep both flush at the crown, and slide the lower end forward to point H in Fig. 88, and mark the backing on each side. This will produce a gradually diminishing bevel from the springing to the crown, and the boards forming the lagging will then lie flat, and can be nailed to the ribs in the ordinary way; the sharp arrises at the joints being taken off with the plane. When groin ribs project beyond the plane of the vaulting, corresponding recesses must be made in the centering.

Fig. 84 is the elevation and Fig. 85 the plan of a compound centre, i.e., one curved in both directions, in this case for a semi-circular arch in a segmental wall. Two ribs are cut to the

* All rights reserved by the Author.

semi-major axes—measuring both from the same end of the rod. Arrange the rod in position across the lines, so that the points will coincide with the axes, and mark at the end of the rod. Repeat the process, as shown by the dotted lines in the figure, until a sufficient number of points in the curve have been obtained, when the outline may be drawn through them by freehand, or a series of nails driven in at the points, and a thin strip of

SANITARY SURVEY OF ENGLAND AND WALES.

A SUPPLEMENT in continuation of the report of the Medical Officer of the Local Government Board for 1894-95 embodies a summary of the general sanitary survey of urban districts in England and Wales made

satisfactory results to which it conduced, rests largely with Dr. Barry, whose very able services the Medical Department could ill spare. Dr. Barry, in the introduction which his death left unfinished, states that the survey had to do, in the first place, with the

SAFEGUARDING OF THE COAST-LINE,

and embraced the inspection of 60 port and 74 riparian districts. In the selection of the

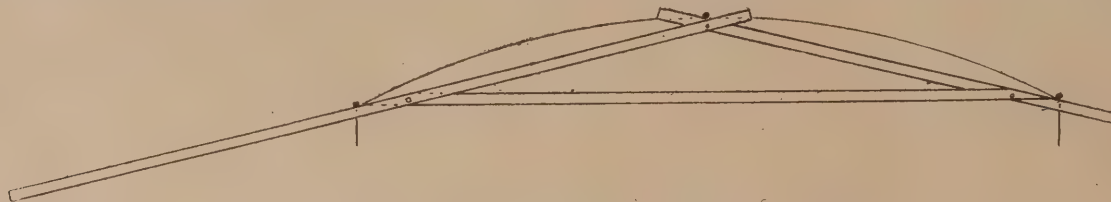


FIG. 91. METHOD OF DRAWING THE CURVE WITHOUT THE CENTRE.

wood bent around them to guide the pencil in marking. The joint lines of the ribs and the direction for the braces in centres of this form may be found by describing a line normal to the curve at the particular point required. First the foci of the ellipse must be found. To do this, set either compasses or rod to a radius equal to half the span, or semi-major axis, and from point C at the crown as a centre describe an arc, cutting the major axis in two points (F—see Fig. 92). These are the focal points. Join these two points to the point in the curve where the joint is desired, and bisect the angle so formed, as at N. This line is the normal, and will give the direction of the joint.

(To be continued.)

MR. JAMES SAUNDERS, assistant surveyor under the Oldham Corporation, has been appointed city surveyor and water engineer at Chichester.

THE Moffat Burgh Commissioners, having considered three systems of sewage purification as reported on by Mr. T. O. Niven, C.E., Glasgow, resolved to adopt the system known as Mr. Dibdin's, or the Sutton system, by which the sewage receives biological treatment, being purified by bacteria before being discharged into the river. At Moffat, owing to the substratum of land being porous, the tanks will require to be built of brick instead of being cut out of clay where this is available. It is proposed to provide an installation capable of dealing with 200,000 gallons in twenty-four hours, which will necessitate an area of about 670 square yards for tank and filter accommodation. The total estimated cost of introducing this system of sewage purification is £2350.

THE South-Eastern Railway Company has completed the reconstruction of Port Victoria pier, the terminus of the Hundred of Hoo branch, which was temporarily closed for traffic in October, 1896, on account of the structure being considered unsafe to bear the strain of trains. The pier has been strengthened by the addition of 324 new piles, the largest of them being 70ft. long and 17in. square. The piles on the river side of the pier have been left standing 6ft. above the deck level, in order to prevent the sponsons of Royal yachts from settling on the edge of the pier when lying alongside at high water. The whole of the old piles have been left in, the new piles being driven alongside of them and being bolted to them by 1½in. bolts. To prevent the inroads of the "teredos," popularly known as shipworms, which have eaten away the old piles in such a remarkable manner, the new piles have been sheathed with copper for a height of 4ft. above mud level. The plan of the superstructure—platforms and buildings—has been entirely altered, the rails being now laid on the inner side of the pier, facing the Isle of Grain. A covered way has been provided for the convenience of royalty arriving or disembarking, and the length of the platform has been extended to 500ft. The works have been carried out by Messrs. John Aird and Sons, of Lambeth.

during the years 1893-95, when cholera on the Continent of Europe was an ever-recurring source of danger to this country. Sir Richard Thorne, in submitting the summary to the President, states that the issue of the volume was unavoidably delayed by a serious accident which befel Dr. F. W. Barry, to whom the survey had been entrusted. Owing to this delay, and to the subsequent death of Dr. Barry, which occasioned a serious loss to the department, the summary relates almost exclusively to the work done by the medical inspectors of the Board in urban sanitary districts. Sir Richard Thorne says the report indicates "the directions in which English

SANITARY ADMINISTRATION

proceeds when danger of imported infection arises; and it serves to emphasise the point that our main trust in the control of exotic disease lies, not in futile attempts to keep away from our shores all chances of infection, but in urging those who are responsible for the health of our communities, whether urban or rural, to maintain, by continuous and systematic work, such a standard of cleanliness as regards air, soil, and water that their districts shall not afford to any chance infection that may reach them the opportunities for multiplication and diffusion." He adds that never before has so sustained and so important a piece of administrative work been undertaken by the Medical Department as that which was carried out during the period 1893-95, when cholera prevailed in different parts of Europe. The credit for the organisation of that work, and, to an important extent, for the

districts to be inspected, the question of the purity of the water supply largely influenced the Board, districts being chosen primarily in which that supply was suspected of being liable to pollution. Subsequently a number of districts were scheduled for inspection in which the administration was believed to be defective, or in which former experience had shown that filth diseases had prevailed. The matters to be inquired into comprised broadly (a) general sanitary circumstances, (b) sanitary administration, and (c) cholera precautions. During the survey, 220 urban districts (comprising 14 county boroughs, 66 municipal boroughs, and 140 urban districts other than boroughs) were inspected, and abstracts of the 220 urban reports are presented in the volume just issued. The last sentence written by Dr. Barry was the following:—"As to the value of the sanitary survey there can, I think, be no two opinions, and it is only to be regretted that owing to the exigencies of the public service it could not be continued for a longer period." The abstracts of detailed reports submitted show that in the case of every urban district inspected some

SANITARY IMPROVEMENT

or other is desirable, especially in regard to water supply—a large number of the gathering grounds being dangerously polluted—while in many instances the inspection disclosed a condition of affairs which called for considerable modification in other respects. In every district the medical officer representing the Local Government Board, after concluding his inquiries, sought a conference with the local

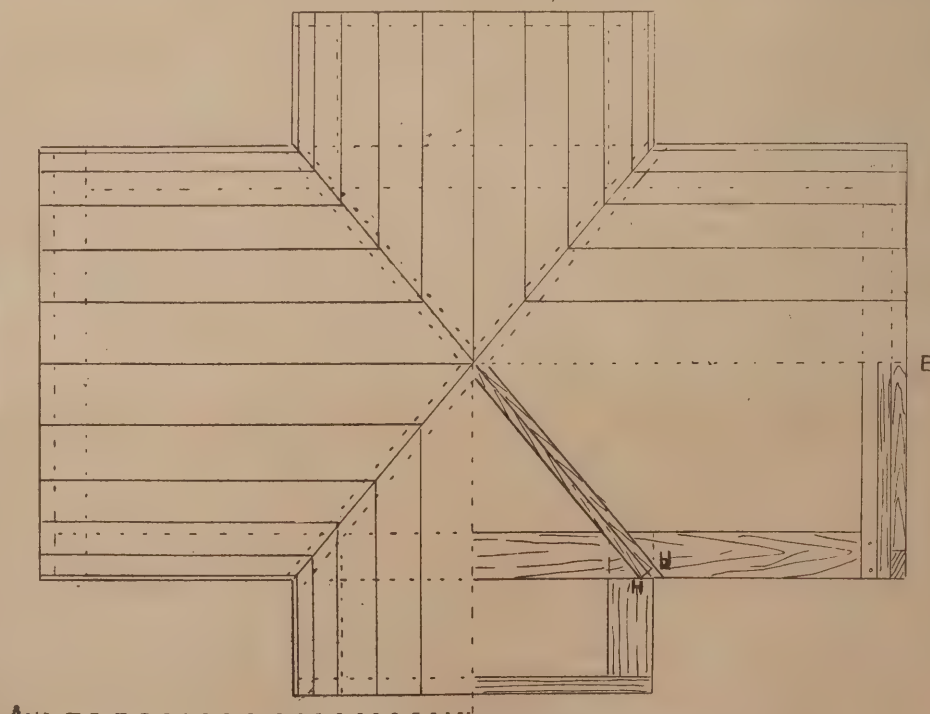


FIG. 88. PLAN OF A "CLOSE" GRAIN CENTRE.

Surveying and Sanitary Notes.

THE Moorend Outfall Works are nearing completion, and will shortly be used in connection with the drainage of the parish of Mangotsfield. Mr. W. L. Le Maitre is the engineer. The total cost of the scheme will be about £6000, and the site where they have been built is a twelve acre field at Moorend, not far from Winterbourne Down. Nine-inch conveying pipe sewers are used, and these, after joining 12in. and 15in. subsidiary mains, are eventually collected by an 18in. main direct to the works. The precipitation tanks into which the sewage is horizontally conveyed are each 24ft. in diameter, and have a holding capacity of 44,000 gallons. After undergoing various processes, the top water or "tank effluent" passes into clarifiers, and thence through channels to the filters. These are constructed of cement, concrete, and brickwork

of a substantial nature. The filtering material is 2½ft. in thickness, containing a base of pebbles, in which 3in. lead pipes are laid. The remaining successive layers are composed of gravel sand and a patent filtering material known as "polarite." Each filter is so constructed that a flow of water will pass under continuously, and to prevent consolidation of sand they are arranged so that it will be possible to upwash any specific filter from its accessory by a head of water. The engine-house is substantially built of red brick relieved by Bath stone and suitable cornices and the central stone is lettered with the names of the Parochial Committee and its officers, under whose régime the work was brought to a completion. It has three chambers. In the first are a seven-horse power engine, air compressor and receiver water vessel, and centrifugal pump for raising the effluent into the storage tank. The second chamber, or press room, contains the lime-mixing apparatus, sludge rams, presses, and a centrifugal pump to raise the top water from the sludge. The third chamber is used for storage purposes.

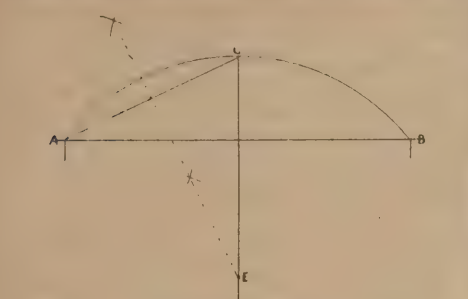


FIG 90. METHOD OF FINDING CENTRE OF SEGMENTAL ARCH.

sanitary authority, in order to make such recommendations as appeared to him to be necessary. These recommendations affected (1) water supply, (2) provision for the isolation of infectious disease, (3) sewerage and house drainage, (4) disposal of refuse, (5) repression of nuisances, (6) inspection of dairies, cowsheds, and milkshops, (7) overcrowding in dwelling-houses, (8) insanitary dwellings, (9) disinfecting apparatus, and (10) special precautions against cholera.

IN the Court of Session, Edinburgh, the Second Division disposed of an appeal in an action brought by Donald Sutherland, solicitor, Nairn, against Robert Squair, mason, Nairn, and other tradesmen, contractors for the erection of a villa at Thurlow Road, Nairn, which was being built for the pursuer. It was stated that the contractors, after proceeding so far, had ceased to perform the work, and had left the job in an unfinished state. In these circumstances, the pursuer craved the Court to remit to a person of skill to inspect and report upon the work done, to ascertain the value thereof, and thereafter to authorise the pursuer to complete the work at his own hand at the expense of such contractors as might be found to be at fault. Sheriff-Substitute Rampini allowed a proof, and, on appeal, Sheriff Ivory recalled this interlocutor, and dismissed the action as irrelevant, with expenses. On appeal, the Second Division adhered to Sheriff Ivory's interlocutor, with additional expenses.

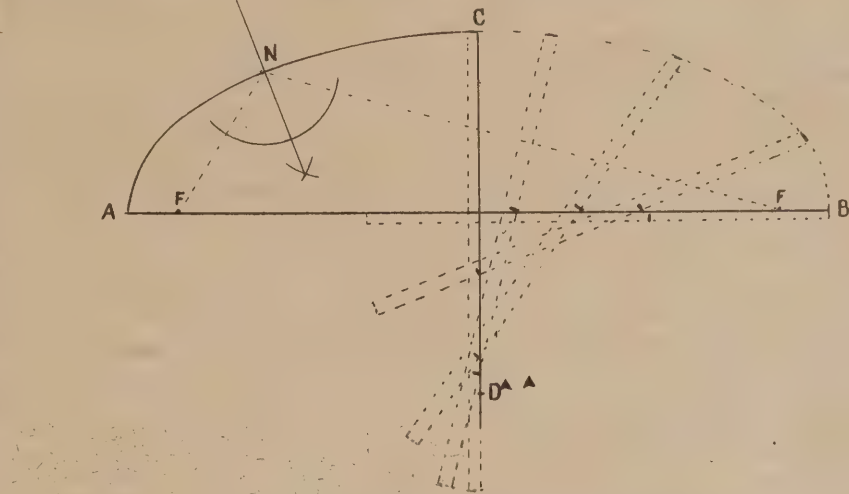


FIG. 92. METHOD OF TRAMMELLING ON ELLIPSE.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
March 19	Caern, Maesteg, Wales—Erection of Chapel	E. Rhodes	W. W. Williams, 63, Wind-street, Swansea.
" 19	Bridlington Quay—Erection of Villas	Rev. Thos. Edwards	J. Earnshaw, Architect, Carlton House, Bridlington Quay.
" 19	Pengam, Wales—Erection of Vicarage	County Borough	E. M. Bruce-Vaughan, Architect, Cardiff.
" 21	Croydon—Extension of Electric Machinery Buildings, &c.	S. M'Atter	Borough Engineer Office, Croydon.
" 21	Belfast—Erection of Business Premises, &c.	Urban District Council	A. Ferguson, Quantity Surveyor, Royal-avenue, Belfast.
" 21	Erith, Kent—Erection of Buildings, Foundations, &c.	Urban District Council	G. Chatterton, 46, Queen Anne's-gate, Westminster.
" 21	Keighley—Erection of Shops and Dwelling-houses	Urban District Council	W. H. and A. Sugden, Architects, Cavendish-st., Keighley.
" 21	Kendal—Alterations, &c., to Hotel	Spencer and Co. Limited	J. Bantley, 7, Lowther-street, Kendal.
" 21	Leyton, Essex—Erection of Infirmary	West Ham Union Guardians	F. E. Hilleary, Clerk, Union-road, Leytonstone.
" 21	Roydon, near Diss, Norfolk—Erection of School	School Board	H. G. Bishop, Architect, Stowmarket.
" 21	Stoke-upon-Trent—Erection of Boiler-house, &c.	Rural District Council	L. Sugden, Miles Bank-chambers, Hanley.
" 21	Londonderry—Erection of House	Mr. B. Smith	W. E. Pinkerton, Architect, St. Drarnond, Londonderry.
" 21	Elgin—Erection of Bungalow	Darlaston Urban District Council	Reid and Wittet, Architects, Elgin.
" 21	James Bridge—Repairs to Cemetery Chapels	Guardians	Surveyor, Town Hall, Darlaston.
" 22	Brighton—Block of Buildings	Urban District Council	H. S. Reed, Parochial Offices, Prince's-street, Brighton.
" 22	Llanover, near Abergavenny—Erection of Church, &c.	Local Board	B. J. Francis, Architects, Abergavenny.
" 22	Meltham, near Huddersfield—Houses, &c.	Urban District Council	J. Kirk and Sons, Architects, Huddersfield.
" 22	Weston-super-Mare—Alterations to Market-houses, &c.	Local Board	Price and Wooler, 15, Waterloo-street, Weston-super-Mare.
" 22	Woolwich—Execution of Works, &c.	Urban District Council	H. O. Thomas, Surveyor, Town Hall, Woolwich.
" 23	Hornsey—Bath and Discharge Rooms at Hospital	Urban District Council	E. J. Lovegrove, Council Offices, Highgate, N.
" 23	Luddenden, near Halifax—Organ Chamber, Vestry, &c.	Waterworks Company	T. L. Patchett, Architect, George-square, Halifax.
" 24	Consett, Durham—Erection of Seven Houses	Rev. B. Mulholland, P.P.	Engineer, Company's Office, Consett.
" 25	Aghadowey, Ireland—Erection of Church	Union Guardians	J. J. O'Shea, 124, Donegall-street, Belfast.
" 26	Bedwellty, Wales—Vagrant Wards	County of Chester	James and Morgan, Charles-street-Chambers, Cardiff.
" 26	Chester—Police Station and Court Room	Union Guardians	H. Beswick, 17, Newgate-street, Chester.
" 28	Gloucester—Erection of Cottage Homes	Co-op. Building & Investment Soc. Ltd.	W. B. Wood, 12, Queen-street, Gloucester.
" 28	Kingston-on-Thames—Alterations at Infirmary, &c.	Great Western Railway Co.	W. H. Hope, Union Offices, Kingston-on-Thames.
" 29	Grangemouth, Scotland—Block of Dwelling-houses	Poplar and Stepney Sick Asylum	G. D. Page, Old Glebe-chambers, Falkirk.
" 29	Roath, Cardiff—Construction of Station	The Vestry	Engineer, Great Western Railway Station, Newport.
" 29	Poplar—Alterations at Asylum	Warneford Hospital	J. and S. F. Clarkson, 136, High-street, Poplar.
" 30	Auldearn—Restoration of Parish Church	Union Guardians	J. Robertson, Architect, Inverness.
" 30	Hammersmith—Extension of Electric Lighting Station	Urban District Council	H. Mair, Town Hall, Hammersmith.
" 30	Leamington—New Wing to Hospital	Kesteven County Asylum	Secretary of the Hospital, Leamington.
" 31	Skircoat, near Halifax—Erection of Villa Residence	New Brompton Economical Society	C. F. Horsfall and Son, Lord Street-chbrs., Sowerby Bridge.
April 2	Windsor—New Infirmary Buildings	W. Bateson and Sons	Edginton and Summerbell, Architects, Windsor.
" 4	Leyton—Extension of Electricity Works	J. B. Jenkinson	H. C. Bishop, Cathall-road, Leytonstone.
" 5	Kesteven—Excavating and Foundation to Asylum		G. T. Hine, 35, Parliament-street, S.W.
" 7	New Brompton—Erection of Bakery, Flour Store, & Shop		E. J. Hammond, 111, High-street, New Brompton, Kent.
July 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.		Brazilian Legation, London.
No date.	Brierfield, near Burnley—Eight Houses		— Dent, Architect, Railway-street, Nelson.
"	Burton-in-Lonsdale—Potteries		W. Bateson & Sons, Waterside Pottery, Burton-in-Lonsdale.
"	Bury, Lancs.—Erection of Thirty Dwelling-houses		A. Hopkinson, 16, Agur-street, Bury.
"	Golborne, Lancs.—Church Works		Heaton, Ralph, and Heaton, Architects, King-street, Wigan.
"	Featherstone—Erection of Ten Houses		R. W. Fearnley, Featherstone Common, near Pontefract.
"	Kimberworth—Erection of Houses		H. L. Tacon, 11, Westgate, Rotherham.
"	Kirkham, Lancs.—Repairs, &c., to Thirteen Houses		E. G. Stead, 29, Princess-street, Manchester.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Otley—Erection of Thirty-One Houses		Fairbank and Wall, 3, Manor-square, Otley, Bradford.
"	Sleaford—Erection of Ten Cottages		J. Clare, Sleaford.
"	Starling, near Bury, Lancs.—Rebuilding Inn, &c.	Brewery Company Limited	T. Nuttall, 20, Market-street, Bury.
"	Tadcaster—Enlargement of St. Joseph's		A. D. Kaye, 71, Albion-street, Leeds.
"	Wadebridge, Cornwall—School Buildings		Kerley and Ellis, Architects, Salterton.
"	Boston, Lincs.—Erection of Offices, Stores, &c.	Soulby, Sons, and Winch Limited	James Rowell, Architect, Boston.
ENGINEERING—			
March 19	Huntly, Scotland—Laying of Cast-iron Water Pipes, &c.	Commissioners	J. Barron, 156, Union-street, Aberdeen.
" 19	Kendal—Construction of Weir, &c.	Gas and Water Committee	T. N. Ritson, Engineer, Gasworks, Kendal.
" 19	Oldbury—Supply, &c., of Purifier	Gas Committee	A. Cooke, General Manager, Gasworks, Oldbury.
" 21	Devizes, Wilts—Dynamos, Engines (Two Contracts)	Wilts Co. Asylum Visiting Committee	Massey and Allpress, 25, Queen Anne's-gate, Westminster.
" 21	Edinburgh—Laying Water Pipes	Water Trustees	J. Wilson, 72A, George-street, Edinburgh.
" 21	Rotherham—Coal Gas Testing Apparatus	Gas Committee	F. A. Winstanley, Engineer, Rotherham.
" 21	Langport—Water Supply Works	Rural District Council	Bailey, Denton, Son, & Co., Palace-chambers, Westminster.
" 22	Stromness, Scotland—Water Supply Works	Commissioners	W. R. Copland, 146, West Regent-street, Glasgow.
" 24	Buncrana to Camdonagh, Ireland—Erection of Railway		Secretary, Board of Works, Dublin.
" 24	Derby—Electric Wiring Asylum, &c.	Corporation	Engineer, Electric Lighting Works, Sowter's-road, Derby.
" 25	Ipswich—Electric Lighting	Electric Lighting Committee	W. Bantoft, Town Clerk, Town Hall, Ipswich.
" 28	Birkenhead—Erection of Iron Pier, Bridge, &c.	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 29	Brighton—Construction of Covered Reservoirs	Town Council	F. J. Tillstone, Town Clerk, Town Hall, Brighton.
" 30	Agha Bay, Algeria—Construction of Harbour		Commercial Department, Foreign Office, S.W.
April 4	Bournemouth—Motor Vehicles	Horse Committee	F. W. Lacey, Municipal Offices, Bournemouth.
" 7	Ditchingham, Norfolk—Reconstructing Bridge	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 20	Glasgow—Ballachulish Railway Extension	Callendar and Oban Railway Company	Sir John Wolfe Barry, 21, Delahay-street, Westminster.
July 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
No date.	Tredegear—Completion of Tramways	Iron and Coal Company Limited	Offices of the Tredegear Iron and Coal Co. Limited, Tredegear.
"	Lochmaddy—Water Supply Works	Inverness County Council	T. Wilson, Solicitor, Lochmaddy.
IRON AND STEEL—			
March 21	Bury, Lancs.—Supply of Stores	Corporation	Gasworks, Bury.
" 21	Stockton-on-Tees—Supply of Stores	Corporation	Borough Engineer, Stockton-on-Tees.
" 21	Langport—Cast-iron Water Mains and Accessories	Rural District Council	Clerk's Office, Langport, Somerset.
" 23	Carshalton—Supply of Ironwork	Urban District Council	W. W. Gale, Surveyor's Office, High-street, Carshalton.
" 23	Holborn, London—Re-construction of Steam and Condensing Mains	Union Guardians	J. Buley, Suffolk House, Laurence Pountney Hill, E.C.
" 24	Crickfield—Cast-iron Water Pipes	Rural District Council	J. Mansergh, 5, Victoria-street, S.W.
" 26	Hunslet, Leeds—Supply of Cast-iron Socket Pipes	Rural District Council	W. B. Pindar, Clerk, Leek-street, Hunslet, Leeds.
PAINTING AND PLUMBING—			
March 19	Stafford—Repainting County Asylum	Visiting Committee	W. H. Cheadle, County Surveyor, Stafford.
" 19	Manchester—Supply of Lead Piping, Paints, &c.	Waterworks Committee	Secretary, Waterworks Offices, Town Hall, Manchester.
" 19	Stroud, Glos.—Painting, &c., to Baths	Urban District Council	Surveyor, Russell-street, Stroud.
" 21	London, S.E.—Painting, &c., Works	London County Council	Architect's Department, County Hall, Spring-gardens, S.W.
" 21	Rotherham—Painting Two Gasholders	Gas Committee	F. A. Winstanley, Engineer, Rotherham.
" 24	London—Repairs, Maintaining, Decorating, Police Stations, Courts, &c.	Metropolitan Police District	Surveyor, New Scotland-yard, S.W.
" 28	Durham—Painting Bridge	Corporation	J. Coldwell, Surveyor, Market-place, Durham.
" 31	London—Cleansing, Painting, and Repairs at Model Dwellings	St. James's, Westminster, Vestry	Vestry Hall, Piccadilly, W.
No date.	Carlisle—Painting, &c.	Race Stand Company, Ltd.	J. P. Stubbs, Secretary, Carlisle.
ROADS—			
March 19	Beverley—Supply of Whinstone, &c.	East Riding County Council	A. Beaumont, County Surveyor, Beverley.
" 19	Lancaster—Street Works	Streets Committee	Borough Surveyor, Town Hall, Lancaster.
" 21	Basford, Notts.—Street Works	Rural District Council	G. W. Hawley, York-chambers King-street, Nottingham.
" 21	Erith, Kent—Supply of Broken Granite, Setts, &c.	Urban District Council	F. Parish, Clerk, High-street, Erith, Kent.
" 21	Hull—Constructing Street	Kingston Estate, Ltd.	C. S. Evington, Barington-street, Hull.
" 21	Nelson, Lancs.—Supply of Granite Macadam, &c.	Corporation	B. Ball, Borough Engineer, Nelson.
" 21	Bournemouth—Supply of Flint, Gravel, &c.	Town Council	F. W. Lacy, Borough Surveyor, Bournemouth.
" 21	Beckenham—Making-up and Widening Road	Urban District Council	J. W. Angell, Council Offices, Beckenham.
" 22	Ravensthorpe, Yorks.—Street Works	Urban District Council	T. Hemingway, District Council Offices, Ravensthorpe.
" 22	Watford—Supply of Granite and Flints (Two Contracts)	Urban District Council	H. M. Turner, 14, High-street, Watford.
" 22	Southampton—Street Works	Corporation	W. B. G. Bennett, Municipal Offices, Southampton.
" 22	Catford—Road Material and Works	Lewisham Board of Works	Surveyor's Department, Town Hall, Catford.
" 23	Hackney—Asphalte Paving Work and Repairs, &c.	Hackney Vestry	J. Lovegrove, Town Hall, Hackney.
" 23	Lewes—Supply of Flints and Ragstone	Uckfield Rural District Council	J. Miles, 173, High-street, Lewes.
" 24	Sutton, Surrey—Supply of Gravel, Flints, &c.	Urban District Council	C. C. Smith, Engineer, Public Hall, Sutton.
" 24	Warwick—Supply of Road Stone	Rural District Council	H. C. Passman, 48, Bedford-street, Leamington.
" 24	Wisbech—Supply of Road Materials	Isle of Ely County Council	P. L. Moore, County Surveyor, Club-chambers, Wisbech.
" 25	Newark—Supply of Granite and Slag	Rural District Council	T. Vickers, District Surveyor, Lincoln-street, Newark.
" 25	Ross and Cromarty—Road Works		A. G. Jones, Surveyor, County Buildings, Dingwall.
" 25	Wood Green—Masons and Paviers' Work, Granite, Ballast, Flints, &c.	Urban District Council	C. J. Gwynon, Town Hall, Wood Green.
" 26	Sleaford, Lincs.—Supply of Broken Granite	Urban District Council	E. Clements, Clerk, Council Offices, Sleaford.
" 26	Chester—Cutting Macadam, &c.	County Council	County Surveyor, Chester Castle.
" 26	New Malden—Road Watering	Urban District Council	T. V. H. Davison, Glebeside, New Malden.
" 28	West Hartlepool—Limestone Tar Pavement	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
" 29	Acton—Road Materials	District Council	D. J. Ebbetts, 242, High-street, Acton, W.
" 30	Kingston-upon-Thames—Street Works	Corporation	Borough Surveyor, Clattern House, Kingston-upon-Thames.
" 31	Romford—Laying and Supply of Granite Kerb, &c.	Urban District Council	Surveyor, Council Offices, Romford.
April 1	Market Harborough—Supply of Granite	Oxenden Rural District Council	C. Burgoine, Clerk, Market Harborough.
No date.	Chesterfield—Supply of Granite, &c. (2 Contracts)	East Elloe Rural District Council	W. C. Jackson, Surveyor, Knifesmith-gate, Chesterfield.
"	Holbeach—Supply of Granite, &c. (2 Contracts)	Corporation	R. P. Mossop, Clerk, Holbeach.
"	Great Yarmouth—Road-making and Paving Works		Borough Surveyor, Town Hall, Great Yarmouth.
SANITARY—			
March 19	Gowerton, near Swansea—Stoneware Pipe Drain	Llangyfelach Rural District Council	J. Thomas, 32, Fisher-street, Swansea.
" 21	Stafford—Supply of Drain and Sewer Pipes	Corporation	W. Blackshaw, Borough Engineer, Borough Hall, Stafford.
" 21	Hornsey, N.—Stoneware Pipe Sewers, &c.	Urban District Council	E. J. Lovegrove, Council Offices, Highgate, N.
" 23	Malling—Drainage of Workhouse Premises	Guardians	J. Ladds, 7, Doughty-street, Mecklenburgh-square, W.C.
" 25	Brampton Bryan, Salop—Culvert	Wigmore Rural District Council	H. W. Bowen, Surveyor, Wigmore.
" 29	London—Replacing Basins at Public Conveniences	St. James's, Westminster, Vestry	Vestry Hall, Piccadilly, W.
April 4	Paddington—Erection of Underground Convenience	Paddington Vestry	Surveyor's Department, Vestry Hall, Harrow-road, W.
" 5	Epping, Essex—Construction of Sewers, &c.	Rural District Council	E. Egan, 39, Lombard-street, London.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
March 21	Linlithgowshire—County Offices	£31 10s., £15 15s.	County Council.
" 21	Belfast—Designs for Church and Lecture Hall	£50, £25	Committee of Fisherwick-place Presbyterian Church.
" 25	Salford—Plans for Generating Station		Electric Light Committee.
" 31	Winchester—Designs, &c., for Public Baths	£25, £15	Town Council.
May 1	Belper—Sewage Disposal Schemes	£52 10s., £26 5s.	Urban District Council.
" 28	Trowbridge—Technical School	£40, £30, £20	The Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major F. L. Anderson, R.E., South Camp, Aldershot.
July 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phoebe A. Hearst Fund, represented in England by R.I.B.A.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Borough Council.
No date.	Godalming—Designs for Municipal Buildings	£52 10s.	Town Council.

Scottish Church Architecture

OF THE

XIV. AND XV. CENTURIES.*

By HIPPOLYTE J. BLANC.

TO attempt anything like a detailed or systematic examination of the church Architecture of Scotland, of the fourteenth and fifteenth centuries, is not here intended. The variety of detail those periods exhibit makes their study very interesting. I hope to satisfy you with a sketch of some of the most prominent examples, which may form leaders to much of like form and detail to be found in many smaller works, and to endeavour, as far as possible, to assist you in your knowledge of the English work of the same time, to compare, from the illustrations, the contemporaneous Architecture in Scotland. One cannot pretend to be very accurate with regard to the precise dates of each and all of the examples selected, because of the special difficulty all students of Scottish work have experienced in chronologically placing them. This may be better realised as we proceed. To many who may have extended their studies of

CHURCH ARCHITECTURE BEYOND THE CONFINES OF ENGLAND

into Scotland, it will doubtless be at once apparent why this particular period of our church examples should be selected; but to those who have not had that opportunity some preliminary words of explanation may be acceptable. In a word, it is the Scotch work of the fourteenth and fifteenth centuries (and for that a large part of the sixteenth century also), which will be found to be more distinctly Scottish than can be said of the works of the centuries preceding. The most casual observer of church forms and details of the eleventh and twelfth centuries in France and in England will readily trace their genesis in the one country, and their acceptance and adoption in the other. During the early part of the Middle ages, when, under the freshness of enthusiasm, Christian emigrants rapidly spread themselves all over Europe, Scotland also received the foreign influence, and readily accepted the progressive developments of architectural forms and details which the church building fraternities brought with them. I do not suppose that anyone has contended that Scotland, during that early period, expressed a style of her own, or even expressed then any very distinctive individuality in her treatment of churches; rather she adopted, under the guidance of her church patrons and founders, the

CHARACTERISTICS FROM BOTH FRANCE AND ENGLAND.

So we find that during the Romanesque, Norman, and First Pointed periods of church building, there is an evident parallelism in the works of France, England, and Scotland, on to the thirteenth century. In England, church builders accepted the leading from France, while there are evidences that she showed some individuality in treatment of details. In Scotland, the French influence for long was strongest. In England, the general proportions differed from those in France; English cathedrals of the twelfth and thirteenth centuries are wider, but not so lofty as are those of the same era in France. In this matter Scotland seems to have followed more closely the French models. English work shows more restful consistency and solidity, but seems to lack the rich grace and elevating continuity of forms—the emotion—of French examples. Whether Scotland, in her works of that early time, ever reached the great flights of skill and poetic expression witnessed in the French examples, we have perhaps lost the means of determining. Wherever, however, remains of her early works are found, there is enough to show that, while her buildings could not vie with those in England in respect of magnitude or richness, yet as regards elegance of composition and expression of disciplined refinement of detail, the abbays and cathedrals of Scotland can claim equal merit; they pos-

sess the same grace; they show the same skill in execution. Her church designers have exhibited equal ability, and her artificers show themselves to have been equally capable with those of other countries during all periods up to the end of the thirteenth century. In Scotland, the buildings were fewer and of smaller dimensions. Chronologically they are several years later than are the English examples, but in plan, general treatment, and in the order of development they do not differ much from their prototypes. As illustrative of the differences of dimensions of contemporaneous cathedrals in England and Scotland the following may serve:—

York	524ft. in length	St. Andrews.....	358ft.
Lincoln	482ft.	.....Glasgow	283ft.
Salisbury.....	474ft.	.....Elgin	282ft.
Durham.....	461ft.	.....Kirkwall	218ft.

Scotland's equal pace with England in the progress and expression of her church Architecture is readily understood when we know that at this time the Norman barons, encouraged by David I., and tempted by extensive gifts of lands, spread and established themselves and their families all over the better parts of Scotland, and following that great example of "that sair sanct for the Crown," founded bishoprics, and for centuries became patrons and superiors of bishops, and also liberal founders of abbays. Those noble Norman lords and knights carried with them from time to time, along with a love of war and the chase, a strong desire to foster the arts of peace, more especially in the form of church building. We find them liberally encouraging the Church in turn by gifts of lands, in which such abbays as Paisley and Melrose shared very largely. Parish churches also, as were required, were built by those barons, and were afterwards, by consent of the bishops, conferred in property upon the great monasteries and religious Houses of Regulars.

THE SINGULAR UNIFORMITY

characterising the ecclesiastical buildings of the twelfth and thirteenth centuries would seem to indicate that fraternities of church builders assisted in rearing the beautiful edifices found over Europe. Rickman reminds us that when Early Gothic was developed, the whole western provinces of France were under the dominion of the English Crown, and that Normandy had been for a century or more part of the same kingdom. Thus Norman knights and churchmen would find ready access to England and Scotland, and carry with them the progressive development of church style. In many cases we know that monastic buildings in Scotland were subject to the rule of the French monasteries from which the communities branched, but, as if anticipating Pope, who enjoins—

Who builds a church to God and not to fame,
Should never mark the marble with his name;

the architects of those great cathedrals have not left any record of their names. If, as we assume, those buildings were the outcome of an aggregation of thought by fraternities, the explanation is apparent. There is no doubt that

CHURCHMEN STUDIED ARCHITECTURE,

and were for the most part architects of their own buildings, being aided and counselled in matters of taste by the members of church-building fraternities already referred to. The influence of England at this time upon our Scottish Church Architecture must have been likewise very important, because we know that the clergy who served in the Scottish churches were either priests from England or kinsmen of the Anglo-Norman founders born in Scotland. "Of the fifteen prelates who were elected to the primatial See of St. Andrew's during the twelfth and thirteenth centuries, and who designated themselves 'episcopi Scotorum,' not one appears to have been a Celtic Scot. Only a few sprang from the Anglo-Norman houses of Scotland, the great majority being Saxons and Normans from England." There must have been much interchange besides, because we are informed that monks from Melrose became abbots of the Yorkshire monastery of Rievaulx, the parent house; Melrose also sent abbots to other

Cistercian houses, including Kinross, Cupar, Newbattle, Deer, and Balmarnock. Those warlike nobles, patrons of the Church, always in a state of preparedness for war, became the general protectors of the unarmed monks, who thus enjoyed unmolested security in pursuing their building operations. The influence upon the country by

THE BUILDING OF AN ABBEY

was great. A long period was usually required for the work, and during that time its members were continually in the midst of the practice of all the arts—painting, sculpture, Architecture, as well as the ornamental hand works, for these were all practised together. The highest taste was thus cultivated, to be afterwards disseminated for the greatest good of the country. To these influences may be added zeal for religion, a higher ideal, a generous rivalry between convents, and a desire to render the church ritual magnificent—each and all of which gave impetus to church work in Scotland, and kept it full of vitality and abreast of the best work found elsewhere. The industrial and social life of Scotland up to the thirteenth century were likewise in a very flourishing condition. In 1249, when the Earl of St. Pol and Blois (a great French lord) was preparing to accompany St. Louis (IX.) of France in his memorable expedition to the Holy Land, builders from Flanders, Marseilles, and Genoa were employed for the armament, and Scotland supplied from Inverness one of the great ships, which gained much admiration. The burgher and trading classes also amassed great wealth, and gave generously of their lands and means to the Church. Scotland was thus a centre of intellectual culture, and enjoyed at this period more peace than fell to the lot of English monarchs. But all at once all these favourable conditions changed. By the sudden death of one of her most enlightened kings, Alexander the Third, in 1286, Scotland's lamp of prosperity and progress was unhappily extinguished, only to be rekindled after a long interval. The succession—an effort to arrange which had been counselled during the lifetime of the king—was now brought to open dispute. England essayed to adjust the matter by placing a king under vassalage to her. This was resented, and wars followed between England and Scotland, and it was only towards the close of the fourteenth century that Scotland began to show signs of returning restfulness and prosperity.

THE EFFECT UPON SCOTLAND'S ARCHITECTURE was disastrous. Scarcely any new buildings were undertaken, and under the wars many of the finest of those existing were greatly damaged. Her patrons—the wealthy nobles—had left the country, many to espouse the cause of England's kings, to whom, after the death of Alexander, they had sworn fealty. During that interval of strife—upwards of eighty years—England's church Architecture had developed new features, passing out of the First Pointed to a new phase—the Decorated or Middle Pointed. But when Scotland resumed her church building her schools of church builders had passed away; consequently she had to go back and, so to speak, recommence the thread of architectural evolution from where she had left it in the thirteenth century. Even the monks had been cast adrift, to find elsewhere the help their homes could no longer afford. In the beginning (that is, in the fourteenth century) few churches were built, but gradually, as returning prosperity increased, Scotland became alive to what she had lost in Art, and in the fifteenth century she came forward with renewed vigour in the expression of a series of churches distinctly of native growth and development.

THE PERFECTED FIRST POINTED PERIOD, with its refinement and purity, its gracefully clustered shafts, lofty groined roofs, and elegant carvings was, in England, virtually obsolete. A style more massive had taken its place, the distinctive features of which were a greater exuberance of ornamentation, wider fenestration with elaborate cusped tracery, pinnacled buttresses, profusion of niches on walls and buttresses, &c. All these were matured and were even passing out of English practice when Scotland commenced again her

* A paper read before the Architectural Association on Friday night.

church work. England had actually entered upon her phase of the Perpendicular. France, with the buoyancy and vivacity of the race, rose out of her Decorated work into the flow of a restless form designated Flamboyant. Thus Scotland, along with the examples of First Pointed in her midst, had the association of the Decorated and Perpendicular of England and

THE FLAMBOYANT OF FRANCE

on which to draw for inspiration. The result we find is not an adoption of either, but a sort of adaptation of all, in which the work of the Decorated period predominates. Thus Scottish artists struggled bravely to regain for her a parallel place with other countries, and, though here and there comparatively unsuccessful, much of her later work of the fifteenth century and of that entering upon the sixteenth century exhibits a return of the native talent for graceful expression and skilful execution. Of the contemporaneous works of England and France no doubt Scotland assimilated a good deal; but in all cases it would appear that she gave an independent character to the rechauffé. Thus her Perpendicular work, which is chiefly found at Melrose Abbey, with a scattered fragment here and there over the country, can scarcely be said to be merely a repetition of that in England. Moreover, with regard to the French influence of the Flamboyant of the same period, it will be found that Scottish examples really show very little of the actual forms of that style. The forms of window tracery, for instance, might be described as a transition between Decorated and Flamboyant. The construction is heavier, but the forms are far more restrained than in the French examples, and are by no means inelegant.

OF DECORATED BUILDINGS

there are few entire examples in Scotland. They were not executed while that style was in practice in England. The Decorated style, however, lingered very late in Scotland, examples being found up to about 1462. The later examples are not so successfully treated, however, the best work being found in Lincluden, Crossraguel, the nave of Glasgow, Elgin Chapter-house, Linlithgow, and part of Melrose. After the date named the work in Scotland became very mixed and degenerate, and under later influences began to show a larger infusion of the contemporaneous work of her Southern neighbours. During the centuries under review no cathedrals nor conventual churches were founded, yet many alterations and additions were made upon those existing. To Glasgow Cathedral was added the upper part of the nave in the beginning of the fourteenth century, while the sacristy, the tower, and the south crypt were added in 1425 and 1500 respectively. In these is manifested the lingering attachment of the Scotch to earlier forms, all beautifully blended in a most interesting manner with details of a later period. But decaying piety and the comparatively diminished resources of the country brought about a reduction in the dimensions of her works. Hence we find, as fewer clergy were required, Scotland's chief works are

THE COLLEGIATE CHURCHES AND CHAPELS,

of which nearly forty were founded in the fourteenth, fifteenth, and sixteenth centuries. David Laing says there were thirty-six erected all over the country in the fifteenth and first half of the sixteenth century. They present in their detail nearly all that is characteristic of the period. Many of them no longer exist. They were built and endowed for a society of priests, commonly in a place not within the Episcopal see. The society consisted of a dean or provost, or other president, and, under them, prebends or canons who had in the Church several degrees or stalls, where they sat for the more orderly singing of the canonical hours. They were instituted for performing Divine service, for singing Mass, vespers, &c., to the memory of the founders. They were divided into two kinds; one of royal foundation, whereof the king is patron, confers the prebends, names the provost or dean, and the canons or prebendaries; the other the foundation of barons. Both, in their

services, were regulated as in cathedrals, but were not under cathedral control.

GENERALLY THE PLAN IS CRUCIFORM,

or intended to be so (because a great many have never been completed), and comprises a central, or sometimes a western tower, a sacristy on the north side of the chancel and a porch on the south side of the nave. In one or two instances are chantry chapels, sometimes the addition of pious founders. In St. Giles' Cathedral, Edinburgh, we have many such additions. Aisles are not common except in the largest of them. Roofs are plain, arched with ribs, but rarely groined. In one case, Roslin, the stone arch has no other external covering. In roof treatment there are many very interesting and quite unique features. Over the vaulting is laid a series of overlapping and guttered blocks of stone in parallel squares, in some instances at very high pitch and others very nearly level. This form of construction involved much difficulty in cases where transept or chapel roofs rose up upon the nave roof. In such cases each section of the building was treated independently with gabled termination. This feature is met with all over Scotland, and seems especially a Scottish invention, being perhaps originally designed for her castles of much earlier date. It is not much met with in English work, and, indeed, I cannot name an example. The forms of most of the buildings of this period being

CHIEFLY AISLELESS STRUCTURES,

gave special prominence to the windows. These were large, and arch-headed, of two, three, and four lights. They were not lofty, however, evidently to avoid cutting in upon the interior vaulting, and necessitating cross vaulting with its more intricate construction. In England, even, we find that notwithstanding the greater richness their works express, the groined vaulting has given place to plain surface vaulting, but decorated with a superfluity of ribs which are merely ornamental. In the same way, while we have a few examples of good vaulting, such as in the south crypt of Glasgow Cathedral (noted to be of 1425, but the precise date is not obtainable), in Trinity College Church, Edinburgh (a building now demolished), and in the collegiate churches at this period—ornamental ribs are here and there found applied to surface vaulting, merely to give distinction to a part of the interior of the building, very often the elongated chancel or choir—such as the chancel at Seton Church. Other examples of this are at Melrose, and St. Mirren's aisle or chapel, Paisley.

IN LINLITHGOW AND STIRLING CHURCHES

may be seen some interesting manifestations of ingenuity in overcoming the difficulties of vaulting over the apsidal terminations of the choir. Fan vaulting is not found in Scotland. Roslin Chapel already referred to (the plan of which resembles very closely the character of the choir of Glasgow Cathedral in its aisles and retro-choir) bears the simple pointed arch vault. It is, however, profusely decorated with ribs rising from the main piers, and, on the fields between, with an exuberance of carving quite unique. The side aisles are vaulted at right angles to the choir vaulting, and in this way a greater elevation than would otherwise have been available is obtained for the windows. This chapel was founded in 1446, and while bearing in its charter that it was built by workmen from foreign parts, it possesses all the evidences of being of home manufacture. The details in moulding are those found on other collegiate churches of the period. Its buttress-framed quasi-porches are quite unique and thoroughly Scottish. For richness and interest in carved work it stands unequalled, if its small dimensions are considered, and in view of the fact that about this time (that is, 1446) French masons were numerous in Scotland, it is possible some were employed upon Roslin. This would explain the charter notice referred to. A pointed arch springing from each bay of the aisles is spanned by a richly carved flat arch between the nave, pier, and wall.

(To be continued.)

ARCHITECTS' BENEVOLENT SOCIETY.

THE annual meeting of the above Society was held at the rooms of the R.I.B.A., 9, Conduit Street, on Wednesday of last week, Mr. G. Seamell presiding. The report of the Council, read by the Hon. Secretary (Mr. Percivall Currey), stated that the progress in the Society's affairs had been maintained in the past year, and that in view of the many calls upon the means of private individuals during that period, the Council did not think it advisable to make any special appeal on behalf of the Society to the architectural Profession. Nevertheless, it had the satisfaction to report that many liberal donations had been received, and that several new subscribers had been added to the list. The report proceeded:—"Although the Society now possesses 300 annual subscribers, the Council feel that this number is not sufficiently representative of the large body of architects practising in the United Kingdom; they are assured that there must be a large number of architects, not subscribers to the Society, who would be desirous of helping their less fortunate brethren, or their widows and children who have been left insufficiently provided for.

THE USEFULNESS OF THE SOCIETY

would be increased in proportion to the augmentation of its list of subscribers; and the Council would remind those who have not contributed to the funds of the Society that an annual subscription of one guinea has the privilege of recommending two applicants for grants during the year, and that relief is always afforded to worthy and properly accredited applicants when there are funds available for the purpose. It is earnestly wished that the list of annual subscribers should be increased, and members of the Society might materially help in effecting this object by bringing its aims and work under the notice of their brother architects." The report further stated that the amount received in annual subscriptions was £456 10s., as against £453 8s. in 1896. Four members had withdrawn and twelve were in arrears when the books closed for the year. "A larger number of applications for assistance than usual were made to the Society, and considered by the Council. After proper investigation in each case the sum of £607 1s., as against £569 10s. in 1896, was distributed amongst forty-three applicants; and £70 was paid to the Society's three pensioners. As the exertions of successive Councils, for many years have succeeded in bringing the amount of the invested capital up to £10,000, your present Council consider that the Society might now

INCREASE ITS PRESENT LIST OF THREE PENSIONS

of not less than £15 a year each to six pensions of not less than £20 a year each. The approval of this step would, the Council think, add to the happiness of deserving applicants by the knowledge that they were to receive annually a certain sum."—The Chairman, proposing the adoption of the report, said he believed there were two thousand members in the Institute alone, and yet they had only three hundred subscribers to the Architects' Benevolent Society. He hoped members would use their influence in obtaining new subscribers.—The report and financial statement (which showed a balance in hand on the past year of £34 7s. 4d.) were passed.—A vote of thanks was accorded to the outgoing members of the Council, and that body was elected as follows: President, Prof. Aitchison, R.A.; Messrs. Arthur Crow, E. A. Gruning, G. T. Hine, Arthur Cates, Aston Webb, H. L. Florence, J. T. Christopher, Sydney Smirke, W. Grellier, E. W. Mountford, R. St. A. Roumieu, Wm. Woodward, E. B. P'Anson, and E. H. Martineau. The Hon. Treasurer (Mr. W. Hilton Nash) and Hon. Secretary were re-elected, with votes of thanks for their past services, and Messrs. Foster Haywood and G. Lethbridge were appointed auditors. In accordance with the suggestion of the Council, in the report, it was agreed to alter Bye-law

65, by substituting the words "six pensions of not less than £20 each," for "three pensions of not less than £15 each." The opinion was expressed that the Council should pay the same by quarterly or half-yearly instalments. A proposition to alter Bye-law 6, so as to read:

"A DONOR OF TEN GUINEAS,

or a donor of five guineas, being also an annual subscriber of one guinea or more, or an annual subscriber of two guineas or more, is eligible to become a member of the Council," provoked some discussion as to whether it was advisable to add the words in italics. It was urged that the Society would be likely to benefit by the proposal, which was eventually carried, it being explained that another meeting would have to be held to confirm the alterations, and that then the matter could be re-considered if thought desirable. Votes of thanks were accorded to the outgoing auditors, the R.I.B.A. for the use of rooms, and the Chairman; and a vote of condolence with the family of the late Mr. J. Edmeston was also passed.

Views and Reviews.

BUILDING IN ST. LUCIA.

Those interested in building in foreign climes generally, and in the West Indies in particular, would do well to purchase "Building in St. Lucia," by John T. Rea, and issued by the Association of Surveyors of H.M. Service in its occasional papers series. The author's purpose is to give a description of "the methods of work and peculiarities of building construction and engineering observable in St. Lucia in particular, and in the West Indies generally." He first gives an account of the geographical, geological, and physiographical conditions of the country, and, whilst speaking under the last-mentioned heading, makes some interesting observations on the subject of the effect of earthquakes on buildings. "Structures of wood," he says, "undoubtedly resist earthquakes better than those of brick or stone; but, of course, there is the danger from fire, and the former material would not do for the more important edifices. The old stone buildings in Castries give many indications of having suffered, being in some cases out of plumb and even cracked, and have here and there been strengthened by iron tie rods. . . . Masonry should be built in *l'as lime*, which has the valuable property of re-setting in any slight damp, so that when a building is fissured by earthquakes and cracks, will speedily close again and still be of a yielding nature. Caverns, wells, and quarries retard the disturbance of the earth and protect works in their neighbourhood." Speaking of climatic influences, Mr. Rea says: "The poisonous effects of the vapour arising from the decaying animal and vegetable matter with which the soil in hot countries is particularly impregnated are now well understood, and, profiting by the experience of the past, all modern barracks in the tropics are constructed so that the ground floor is raised several feet above the level of the soil, and the whole area of the site underneath covered with a layer of concrete, having a deep air space between. The walls surrounding this space are pierced with numerous large openings, so that the wind can sweep in every direction below the building." The author proceeds to give instructive details on the planning and construction of buildings, which includes a full description of military works. A tabulated statement shows the quality of the building materials obtainable in the island, and a few plates illustrate the kind of erections carried out. The pamphlet, which contains about eighty pages, is published at half-a-crown, by Robert Carruthers and Sons, Inverness.

The foundation stone of a new parish church at Handforth, near Wilmslow, has been laid. The new building is being erected in brick and stone on land adjoining the present church, at a cost of £3000.

Professional Items.

ACCRINGTON.—A new cottage hospital has been erected in Whalley Road, Accrington. The original estimate was about £3000; but after the committee had visited similar institutions elsewhere they found that it would not be possible to erect a hospital adequate for the needs of the town and district for that amount. The scheme was, therefore, enlarged. The bills of the contractors and others amounted to £5240. The hospital is built of red plastic brick, with Yorkshire stone dressings or terracotta, and is designed in the Renaissance style. The wards will accommodate sixteen beds.

BETHAM.—The church has been beautified by a stained glass window, which has been placed on the south side. It has three lights, each containing a standing figure of an apostle. The figure of St. Peter in the centre light stands at a higher level than the others, and in an architectural base is a small delicately painted subject of our Lord's preaching in the temple. The window has been designed and executed by Messrs. Shrigley and Hunt, Lancaster.

BRIERLEY HILL.—A new Primitive Methodist chapel has been erected in Moor Street. The front of the edifice is Renaissance in style, and the terra-cotta ornamentation is effective. A large central window is one of the principal features of the façade, and there are vestibules on each side giving ingress to the interior, which has an air of comfort and good arrangement. The church has an open roof, the principals being filled in with carved and pierced work and shaped spandrels. The pewing and framing is of pitch pine, and polished walnut is used for the rostrum. The chapel is heated by hot water. A raised gallery is provided for the choir, and there are vestries and other accommodation. Messrs. Hicklon and Farmer, of Walsall, are the architects, and the work has been carried out by Mr. Horton, contractor, of Brierley Hill, at a cost of £1500.

DRIFHLINGTON.—A new Sunday school has been built at Drifhlington. It has been erected from plans prepared by Mr. Banstock, architect, Batley. It will provide accommodation in the shape of eight class rooms, a large assembly room for school purposes or for public assemblies, a chapel-keeper's house, and a school kitchen. The cost has been about £1600.

HALIFAX.—The new premises of the Halifax and Huddersfield Banking Company, in Commercial Street, Halifax, form one of the most notable buildings in the town. It has been erected from the designs and plans of Mr. W. Clement Williams. The style adopted for the elevation is Classic of the ornamental type, and is Corinthian in detail. The main entrance is approached by a vestibule treated in an ornamental way in Doulton ware, and of the same elaborate character as the rest of the Architecture. On the right and left are minor vestibules, from which direct entrance is obtained into the banking-hall, which is a large and lofty apartment, lighted from the roof, the lower portions of which are toned in coloured glass. Corinthian columns with dados are ranged all round the hall, supporting cantilevers with statuary. The front portion of the floor is of a tasteful mosaic pattern, and the counters and desk are of fumed oak. On the left hand is an archway, leading to the manager's private room, besides which there are three waiting-rooms. Close by are the directors' room and sub-manager's offices, the latter apartment being so arranged as to overlook the whole of the banking-hall. On the opposite side of the hall are the accountant's departments and the strong-rooms for bullion, plate, and books, respectively. The upper floor contains apartments for the storage of books, the keeper's residence, the bank manager's private room, and the directors' dining-room.

LANCASTER.—The principal feature in the proposed enlargement of Castle Station is the new island platform, which will take the place of the present "up" platform. The length of this new platform will be about 756ft., and the width of the central portion will be about 60ft. There will be every convenience provided in the way of refreshment-rooms, waiting-rooms, &c., upon this platform. The present "down" platform will be extended by about 200ft., and there will be four lines of rails between this and the island platform. The local traffic from the Castle branch of the Midland Railway will be dealt with by an additional platform on the east side of the station, and the local traffic from the Glasson Dock branch will be dealt with by an additional platform on the west side. The new platforms will be approached from the town by a new road on the high level on the east side. A large booking-office will be erected, and access will be gained to the platforms by a covered footbridge, which will be provided with stairs for passengers, and there will be a separate footbridge with hydraulic lifts for luggage. A large portion of the platforms will be roofed in.

LIVERPOOL.—A couple of years ago the beauty of Sefton Park was enhanced by the erection, by Mr. Yates Thompson, of a palatial palmhouse costing over £12,000. Recently Mr. Yates Thompson, who was accompanied by the Lord Mayor and Mr. Mackenzie, architect, of the firm of Messrs. Mackenzie and Moncur, horticultural builders, Edinburgh, attended at the meeting of the Parks and Gardens Committee, and offered to erect a splendid conservatory in Stanley Park. Plans of the proposed building, to cost £10,000, were laid before the members of the committee, who expressed their appreciation of Mr. Yates Thompson's generosity by according him a hearty vote of thanks. The new palmhouse will be about 120ft. in length, but of somewhat different style to the one in Sefton Park, and will be erected opposite the bandstand in Stanley Park.

Mr. Shelmardine (the City Surveyor) recently presented a report to the Liverpool Corporation Finance Committee as to the utilising of the site of St. George's Church. He said that he had personally inspected the church and the vaults underneath. The plans submitted, which appeared to have been made in the year 1815, showed that there were 116 vaults or grave pits, situated directly underneath the body of the church. These contained the remains of 813 persons, the last interment having taken place about thirty years ago. The majority of the pits had wooden lid coverings, which in many instances had fallen in, and inasmuch as no earth covered them, the coffins, and in several cases the remains, were disclosed. With regard to the church, the Act stated that "the trustees shall within two years take down and remove the church, and, with the consent of the Lord Bishop, sell or otherwise dispose of the materials thereof." The trustees' surveyor (Mr. Bradbury), who had had an interview with the Corporation surveyor on the subject of the removal of the church, had stated that it was the intention of the trustees to take down and dispose of everything to the floor level of the church, leaving the spire and arches of the vaults and the foundation for the Corporation to remove. The trustees claimed that under the Act they were entitled to take down and remove only such portions of the building as they might think fit. The effect of that would be, if the trustees carried out the demolition in the manner intimated, that the Corporation would be put to considerable expense, far exceeding any sum that would be realised by the sale of the old materials. To take down the spire, which was a lofty one, scaffolding would have to be erected, and that would be a costly undertaking itself, while the removal of the foundations and the external walls, which were 3ft. 6in. in thickness, would be another item of expense far outweighing the value of the material. The surveyor, therefore, asked for instructions from the committee with regard to the matter. After the removal of

the church, clause 15 of the Act provided that the Corporation should be at liberty to use or build on the site, or any part thereof, for any city or street improvement, or other public purposes, but not for any commercial purposes. Consideration of the report was postponed until more information was obtained.

LOWMOOR, NEAR BRADFORD.—Three stained-glass windows have just been placed in St. Mark's Church, Lowmoor. The subjects represented are "The Holy Family," "Ruth," and "Dorcas." The work is from the studio of Messrs. Abbott and Co., Brock Street, Lancaster.

MOSELEY.—Moseley Parish Church has been re-opened, after undergoing considerable enlargements. The alterations have been designed by Mr. J. A. Chatwin. The church was formerly one of those box-like structures, with bare walls and a flat east end, without any recess for the Communion table. A few years ago a north aisle was erected, which somewhat relieved the monotonous effect of the interior. At the same time a small apsidal chancel was also erected, in keeping with the old building of sixty years ago. This was found to be a mistake, and it was to rectify it that the bold plan suggested by the architect was adopted, which provides a large chancel, a chancel aisle, and also a south transept, which will accommodate about one hundred additional sittings. The plan was made with the view of extending the improvements hereafter by dividing the present body of the church into a well-proportioned nave and south aisle, which, with large clerestory windows, will make the building one of the finest of local parish churches. The east window consists of seven lights or divisions wide, and is so constructed as to bring in the three stained-glass windows of the former chancel, executed by Hardman. There are also two stained-glass windows, by Ward and Hughes, inserted in the north and south sides of the chancel. The arches between the transepts and chancel, and a window with reticulated tracery at the south end of the aisle, are exceedingly effective. The chancel and transepts externally are faced with Bromsgrove stone, and have a bold appearance, suggesting the continuation of the work westward to make it complete. The floors under the seats are laid with wood blocks, while the portion of the chancel within the altar rails is paved with Rusts glass mosaic of suitable design. The roofs are covered with green Westmoreland slate. Messrs. Collins and Godfrey, of Tewkesbury, are the contractors. The outlay has been between £2000 and £3000.

NOTTINGHAM.—The new Empire Palace and Music Hall, which has just been completed, was designed by Mr. Frank Matcham. The interior of the auditorium presents a gorgeous spectacle. The scheme of decoration is Oriental in character, and Indian methods in regard to Art have been largely drawn upon. The two boxes which flank the stage are surmounted by pagoda-like gilded domes, and two grinning idols, representing probably the Indian god Krishna, guard each side of the proscenium. The ceiling and circle fronts are resplendent with blue and gold colouring—the hues which are the predominating features of the scheme. Large models of elephants' heads stand out boldly at each corner, supporting the ceiling, and there are four huge tablets representing Indian tapestry, depicted in the peculiar colours which are characteristic of this material. Finely executed hand-painted designs upon various subjects are let into the ceiling here and there, and nearing the centre are more representations of Indian gods and sun rays, displayed in relief. Exactly in the centre is fixed a glass sliding roof, after the style of the Pavilion and Canterbury, among other London halls. This can be removed and replaced in the short space of time of half a minute, the mechanism being extremely simple. The adoption of this principle will enable the management to practically preserve an equable temperature all the year round. The heating apparatus is constructed upon the most recent

methods. The visitors to the grand circle and fauteuils are admitted from the street to a crush room. A wide and easy flight of stone steps leads to a well-appointed lounge, which extends from one side of the circle to the other. At each end is placed a cloak room. The staircase and lounge walls are covered with thick leather paper of handsome appearance, in maroon and gold. At the back of the grand circle a series of roomy boxes, similar to those at the London Empire, have been placed. The seats in the grand circle, stalls, and fauteuils are all on the best principle, upholstered in old gold plush, which imparts to the auditorium a very warm and comfortable appearance. The fauteuils are reached from the circle. The line of sight throughout the building is admirable, for there is not a seat in the theatre which does not command an uninterrupted view of the stage. The "pitch" of the seats in the circle, balcony, and gallery is very steep. Ample attention has been given to the exit doors. The stage is 35ft. wide, with a 30ft. proscenium opening. Mr. J. Greenman, in the position of resident clerk of the works for Mr. Matcham, has superintended the erecting of the music hall from the commencement.

QUANTON, BUCKS.—New schools are to be erected at Quanton, at a cost of £1747. The designs selected, in a limited competition, have been prepared by Messrs. W. F. Taylor and Son, of Aylesbury and Thame. The contractors are Messrs. King and Cannon, of Quanton, who have already entered upon the work.

RHONDDA VALLEY (Glamorganshire).—The Rhondda District Council has accepted the plans of Mr. W. D. Morgan, architect, of Ton Pentre, Rhondda Valley, sent in in competition, for an isolation hospital to be erected at Ystrad. Accommodation is to be provided for thirty-two patients, matron, nurses, and non-resident medical officer, with laundry, disinfecting, and discharging blocks, &c. The cost of the proposed scheme is estimated at about £10,000. Ten sets of designs were received.

STONEHAVEN.—A notable granite residence has just been completed at Stonehaven. It is erected on a fine site at the junction of Bath Street and Slug Road. The house is built in the Scottish baronial style of Architecture, the south and west elevations (which are the exposed ones) being built in Kemnay granite, and the ashlar rock-faced, with fine picked dressings. The front elevation is 72ft. in length, the centre turret rising to a height of 55ft. The roof is covered with Tiberthwaite green slates, and the ridge has a neat cast-iron cresting. The inside finishings are all of American poplar, known as canary weed, except the staircase, which is of pitch pine. The hall containing the staircase is lit by a large cupola from the roof, and forms one of the principal internal features; the public rooms are spacious and well appointed. The following contractors have carried out the various works: Mason work, Mr. George Gregory, Stonehaven; carpenter work, Messrs. R. Thomson and Sons, Stonehaven; slater work, Mr. Charles Maitland, Aberdeen; plumber work, Mr. A. Mathieson, Stonehaven; plaster work, Messrs. Scott and Sellar, Aberdeen; painter and glazier work, Messrs. Barron and Son, Aberdeen. The building was designed and carried out under the superintendence of Mr. J. Augustus Souttar, architect, Aberdeen.

WHITTINGTON.—A Congregational chapel has been erected at Whittington. The architect was Mr. Williams, Liverpool, while the work was carried out by Messrs. Griffiths and Son, of Ellesmere and Knockin. The building is in the Gothic style, and is of red Sweeney brick, with dressings of terra-cotta, and window traceries of Grinshill stone. It is 40½ft. long by 27ft. wide, and will seat about 180 persons. A vestry, with other out-offices, is attached, while in the rear space is left for the erection of a schoolroom.

Under Discussion.

ELECTRIC LIGHTING OF HOUSES.

Before the Architectural Section of the Philosophical Society of Glasgow—Mr. P. Macgregor Chalmers in the chair—Mr. William Arnot, electrical engineer, Glasgow, read a paper on "The Distribution of Electricity in the House." He went over in detail the different fittings in a house, and the different systems of wiring. He was of opinion that switches should not be spared, as they tend to reduce the annual bill for current. Fuses should only be placed in suitable boxes, and not scattered over the house in inaccessible places, even though the cost is a trifle more in such a system. He thought more taste could be expended on fittings, not so much brass, and more light, and that the positions of the lights should tend more to decorate a room rather than burden it.

EDINBURGH ARCHITECTURAL ASSOCIATION.

This Association held a visiting meeting on Saturday, going to Leith, when, by permission of the School Board, the Academy was inspected. Under the leadership of Mr. George Craig, the infant classrooms, juvenile classrooms, art rooms, lecture hall, chemical laboratories, physical and mechanical laboratories, and other rooms for a science college, cookery, sewing rooms, &c., were viewed, and the heating and ventilation on the Plenum system, put in by Mr. Key, of Glasgow, was also examined. Afterwards the visitors paid a visit to old Leith, under the direction of Mr. John Watson.

NEW ARCHITECTURAL SOCIETY AT ABERDEEN.

For some little time past steps have been in progress for the formation in Aberdeen of a Society of Architects. These have been brought to a most successful issue, and at the first annual meeting of the Aberdeen Society of Architects, held recently, the following office-bearers were elected:—President, Mr. James Souttar; vice-president, Mr. Arthur Clyne; hon. secretary and treasurer, Mr. John Rust; members of Council, Mr. William Kelly, Mr. A. Marshall Mackenzie, Mr. A. H. L. MacKinnon, Mr. George Watt, Mr. R. G. Wilson.

ENGINEERING SURVEYS.

At a meeting of the Liverpool Engineering Society, Dr. J. H. T. Tudsbery read a paper on "Engineering Survey Work." He said that he desired not to invite the attention of the society to what might be regarded as the artisan department in surveying—to land chains, wires, tapes, poles, &c., but to what extent scientific processes might be advantageously applied in their daily work. In dealing with the matter of accuracy he expressed the opinion that far too much weight was attributed to "average" results in survey work.

TIMBER FOR CONSTRUCTION AND DECORATION.

The monthly meeting of the Sheffield Society of Architects and Surveyors was held on the 8th inst. A lecture was delivered by Mr. Charles Castle, of Sheffield, on "Timber for Construction and Decoration." The lecturer pointed out that the variation of the seasons during the process of "seasoning," especially abroad, greatly effected the quality and consequent value of foreign deals, battens, and boards, either appreciating or depreciating them as the seasons were favourable or unfavourable. Mr. Castle passed in review some of the ordinary woods of commerce, such as spruce, pitch pine, yellow pine, red pine, &c. Then teak, Kauri, Oregon pine, mahogany, oak, and canary wood, pointing out their various characteristics, and showing in detail many interesting facts in relation to them. Some good specimens of the combination of various woods for decorative purposes were then shown, including yellow pine panels, and pencil cedar mouldings, teak and black wood mouldings, black wood and purple wood

mouldings, Kauri and mahogany ditto, mahogany panels and canary wood mouldings stained black, Padouk and black wood mouldings, Cuba mahogany panels and walnut mouldings, satinwood panels and purple wood mouldings, fumigated oak panels and brown oak mouldings, Cuba mahogany panels, and sycamore mouldings, stained black, canary wood stained walnut or mahogany. The lecturer said that teak was one of the most reliable and beautiful of woods. It had the advantage of standing artificial drying without casting, and it was most durable. Vessels built of teak nearly a century ago were afloat to-day in good condition. A plain varnished railway carriage of teak was instanced as an example of the beauty of this wood. Kauri was a wood also much praised for its beauty by Mr. Castle, who said that its natural colour was like plain satin wood, and used in decoration it would alternate with any darker wood. It was strongly recommended for first-class floorings, staircases, hand rails, and shop fronts.

THE BIRMINGHAM WATER SUPPLY.

At a meeting of the Birmingham Municipal Technical School Engineering Society, a paper on the Birmingham Corporation Welsh water supply was read by Mr. Cecil W. Tye, of the Water Department engineering staff. Mr. Tye, by a cross-section of the works, showed the position of the four dams under construction—viz., Caban Coch (122ft. high and 600ft. long), Careg-ddu (the submerged dam), Pen-y-Gareg (128ft. high and 525ft. long), and Craig Goch (120ft. high and 625ft. long)—and by a diagram pointed out the advantages in the special design of dam adopted by Mr. Mansergh, which gives an extreme factor of safety. By the aid of lantern views Mr. Tye was able to explain the methods adopted in dressing the stone for face work, the mixing of the concrete, and placing it in position. Samples of the stone quarried on the ground were exhibited. This stone is peculiarly tough and hard, and is very suitable for the purpose required. The best is dressed for facing work. Six special installations of stonebreakers are in use for breaking up the stone for concrete. About twenty-three locomotive steam cranes and a large number of hand cranes are in use in various parts of the works.

R.I.B.A.: THE ROYAL GOLD MEDAL.

At a special general meeting of the Royal Institute of British Architects, held on Monday, March 7th, the chairman, Mr. W. M. Fawcett, M.A., vice-president, moved that, subject to Her Majesty's gracious sanction, the Royal Gold Medal for the promotion of Architecture be presented to Professor Aitchison, R.A. The motion having been seconded by Mr. H. L. Florence, vice-president, it was carried *nem. con.*—At the ninth general meeting of the session, which followed the special meeting held on Monday, 7th inst., it was announced that the Council had resolved to increase the value of the Owen Jones Studentship from £50 to £100, and that the holder of the studentship would be required to make a tour extending over six months, such tour to be devoted to the improvement and cultivation of his knowledge of the successful application of colour as a means of architectural expression. The following candidates for membership were elected:—As Fellows: George Lethbridge [A.] and Edward Thomas Boardman (Norwich); As Associates: Laurence Hobson, William Charles Hulbert, John Ormrod, Dudley Christopher Maynard, Timothy Honnor, Harry John Pearson, F.S.I., Ralph Henry Morton, Herbert Shepherd, William McCulloch, John Frederick Duttoit, and Henry Albert Collins.

The foundation stones of a Bible Christian Chapel and Schools have been laid at Ford. The cost is estimated at about £6000.

A COUNTY meeting was held in the Chapter House at Lincoln Cathedral to discuss the feasibility of erecting a permanent memorial to the late Poet Laureate. A statue was suggested, but eventually it was decided that the memorial should take the form of a large stained-glass window in Lincoln Cathedral.

Enquiry Department.

IRON ROOFS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you tell me of any book on iron roof construction; giving stress diagrams of innumerable patterns? Mr. Drew's articles in your Journal are brief; I have been through them.—Yours truly,

J. A. T.

There are many books on iron roof trusses; but you appear to want the stress diagrams rather than a general treatise. Perhaps the following would suit your purpose: "Bridges," Stresses in girder and roof trusses, for both dead and live loads; Part I, Girders; Part II, Roofs; with over 100 stress diagrams; by F. R. Johnson, A.M.I.C.E.; E. and F. U. Spon; 1 vol., 6s. "The Design of Structures," with numerous diagrams and tables, by S. Anglin, M.E., Dub.; C. Griffin and Co., Ltd., 16s. "Stresses and Thrusts," by G. A. T. Middleton, A.R.I.B.A.; B. T. Batsford, 4s. 6d.

EXTERNAL WALLS OF DOMESTIC BUILDINGS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—The construction which the District Council (referred to in your issue of February 16th) put upon their bye-laws with regard to external and party walls of domestic buildings is undoubtedly correct, and in accordance with the usual practice. If the height of any story is over 10ft., no matter whether that story be the ground floor of a two-story building or the top story of a high building, its walls must be at least 13½in. thick, the point being that under sub-section (k) 10ft. is the maximum height of 9in. wall which may stand alone, i.e., unaided by the lateral support

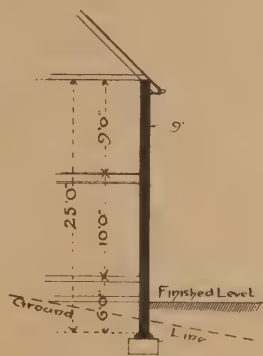


FIG. 1.

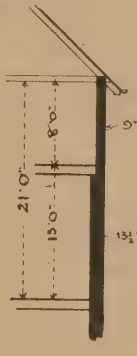


FIG. 2.

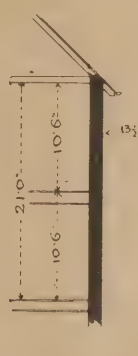


FIG. 3.

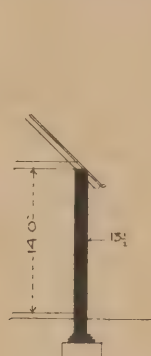


FIG. 4.

of a floor. Fig. 1 shows a case in which full advantage is taken of (a) without infringing (k). It is to be noted that (k) is a restriction on all the preceding sub-sections which allow 9in. walls; for instance, Figs. 2 and 3 show the upper part of a wall under the sub-section dealing with walls of domestic buildings between 30ft. and 40ft. high. The top story may be built with a 9in. wall if as in Fig. 2, but if the floors are disposed as in Fig. 3, sub-section (k) comes into operation, and the top story wall must be 13½in. thick. Even if the building be only one story high, the wall must be at least 13½in. thick if that story be above 10ft. in height, as, for example, in Fig. 4.—I am, dear Sir, your obedient servant,

LEWIS E. G. COLLINS.

WIND PRESSURES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be glad of a solution to the following questions: (1) According to the tables in Hurst P. 139, taking 45 deg. as inclination of surface of a roof, and wind pressure at 40lb. = P, ("pressure of wind in pounds per square feet against a surface perpendicular to its diversion") we have

$$P_n = 36$$

$$\frac{P_h}{P_v} = 25.5 \text{ about } e$$

What is the correct graphic representation of this showing original wind pressure P? (2) In Molesworth P. 98, "Load on Roofs," Load

for pressure of wind 36cwt. per 100 super. feet. Does this weight represent the pressure P. (in my first question), or P_n the normal? What is the best book on this subject, i.e., graphic statics in regard to roofs—wind pressure diagrams worked out—and dead weight, etc.—Yours obediently,

"A STUDENT."

The practice with regard to wind pressures on roofs is differently stated by different authorities. Some always calculate for the maximum horizontal wind pressure, taking this at 40lb. per vertical foot super. Others use the equivalent normal pressure as given by Rankine, and quoted by Hurst. Others assume that the ordinary pressure of 40lb. per foot super is depressed at an angle of 30 deg. with the horizon, as it occasionally is in a high eddying wind. Against all these, Professor H. Adams proved conclusively, in a paper read before the Society of Architects some years ago, that if a dead load of 60lb. per foot super (horizontal) be calculated for, the same roof, to all intents and purposes, is arrived at as if the dead loads and wind pressures were each taken at 40lb. Possibly you would follow the subject best by reading Middleton's "Stresses and Thrusts" (Batsford).

WILLESDEN ROOFING PAPER.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you give me any information about the Willesden waterproof paper for use in laying under zinc (boarding also being used) for a roof, as compared with roofing felt? Which is preferable? Thanking you in anticipation, I am, Sir, faithfully yours,

B. A.

The advantages of Willesden paper as compared with roofing felt are that the former is waterproof, rotproof, and insect-proof, it is

also to a great extent fire resisting, it has no smell when subjected to heat, does not perish, as does felt, and, being a lead conductor, will keep a building cooler in summer and warmer in winter. For these reasons it is much to be preferred to felt, although its first cost is slightly above that of the latter.

MODEL LODGING HOUSES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you kindly inform me through your paper if there is any book to be had relating to model lodging houses?—Yours faithfully,

"ARCHITECT."

It is better, remembering the stringent regulations imposed with regard to model lodging houses, to study plans of buildings of this kind already erected. Such study, in conjunction with a review of the local bye-laws, would guide you considerably. Much valuable information can be obtained from "The Municipal and Sanitary Engineer's Handbook," by H. Percy Boulouis, M.I.C.E., late city engineer, Liverpool. E. and F. N. Spon, 15s.

THE North Bierley District Council has resolved to apply to the Local Government Board for sanction to borrow £9500 for the purpose of laying out a new cemetery. It is proposed to spend £2000 on the provision of one chapel, and £1000 on a lodge and out-buildings.

Trade and Craft.

CHANGES OF ADDRESS.

Mr. Owen W. Davis, architect, whose address has hitherto been 1, Caroline Street, Bedford Square, W.C., notifies us of his removal to 27, Rutland Street, Hampstead Road, N.W. Mr. Herbert G. Ibberson, A.R.I.B.A., and Mr. T. P. Figgis, A.R.I.B.A., have both removed to 28, Martin's Lane, Cannon Street, E.C.

MESSRS. T. AND R. BOOTE, LTD.

Messrs. T. and R. Boote, Ltd., of the Patent Tile Works, Burslem, are removing their London office from Waltham Buildings to more convenient premises at Birkbeck Bank Chambers, Southampton Buildings, Holborn, E.C. The change takes place on March 25th, and will no doubt be duly appreciated by their customers, whose wishes will as heretofore be attended to by Mr. Thomas Foster, the agent of the firm. Messrs. Boote have recently completed some important contracts for tiling, amongst which are the Blackwall Tunnel, Rangoon and Pretoria Government offices, and almost the whole of the interior of Birkbeck Bank Buildings, on which these offices will in future be situated, and which will therefore be a permanent specimen of their work.

MESSRS. WILSON AND CO.

The 1898 catalogue of Messrs. Wilson and Co., of 24, Harrison Street, Gray's Inn Road, W.C.—whose patent dioptrical pavement and floor lights have now been generally recognised as possessing the maximum advantages as light projectors—fully illustrates the latest developments in pavement light engineering. We have already described the firm's dioptrical lights, which, whilst possessing the reflective power of the semi-prism, have also the dioptrical effect of the concave lens in diffusing the light over a much greater area; we would therefore refer only to the other patented improvements which are the result of Messrs. Wilson's long experience. A very acceptable non-slippery pavement light seems to be forthcoming in their "Safety" patent. The upper portions of the frames are entirely of lead; the surface thus affords a firm and even hold for the foot, and the general appearance is superior to that of the ordinary lights. An improved cellar flap, illustrated in the catalogue, deserves notice. These flaps are made folding, and are hung on centres in a strong cast-iron, guttered frame, and form a perfectly water-tight illuminating covering for all kinds of openings. In appearance and in durability they are far in advance of the usual wooden flaps. Messrs. Wilson also illustrate several patterns in ornamental tile and glass pavements, which are especially suitable for entrances, vestibules, &c. An improvement on the ordinary illuminating stair-treads and risers is also shown.

It is stated that there is no foundation for the reports which have recently been published to the effect that a portion of the grounds of Chiswick House is in danger of being built upon.

SIR ARTHUR BLOMFIELD has furnished a beautiful design for a chancel screen to be erected in St. Mary's Church, Mortimer, near Reading, in memory of the late Mr. Richard Benyon, of Englefield House.

THE Belgian Department of Railways having decided on the construction of a bridge across the Scheldt at Hoboken, a few miles below Antwerp, the well-known engineer, M. Van den Broeck, is to make a tour in America in order to study large railway bridges in different parts of the United States.

A MONUMENT of Mrs. Gaskell has been erected in the little Cheshire town of Knutsford. A bust in bas-relief, executed by an Italian artist, Cavaliere Achille d'Orsi, has been let into the wall of the Post Office, near the entrance into Tatton Park, and at the base of the figure there lies a copy of "Cranford," with a quill pen and a laurel wreath. The monument is wrought in bronze.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

AYLESBURY (Bucks).—For alteration and addition to the "Railway Hotel," Aylesbury. Mr. Guest Luckett, architect, Aylesbury:—
Kingerlee and Sons .. £2,497 .. Senior & Clarke, Wende-
Sherwin .. 2,300 .. over (accepted) .. £2,100
Kimberley .. 2,180 .. Grimsdale .. 1,849
Net amount of tenders after allowing for old materials in existing house.

BANGOR.—Hamilton-road Presbyterian Church, Bangor, co. Down, for the Committee of the Church. Mr. W. J. W. Roome, architect, Belfast:—
Robert Caldwell, Bel. .. £3,195 .. James Kidd, Belfast .. £7,294
John Lowry and Son, .. 7,975 .. James Colville, Bangor .. 6,591
Belfast .. 7,975 .. * Accepted for first blocks.

BELFAST.—Shankhill-road Mission Buildings, for the Committee of the Mission. Mr. W. J. W. Roome, architect, Belfast:—
John Lowry and Son, .. £16,972 .. W. J. Campbell & Son .. £13,454
Wm. G. Callen .. 15,000 .. Courtney and Co. .. 13,249
McLaughlin & Harvey .. 13,590 .. * Accepted.

BELFAST.—Villa, Adelaide-park, Belfast, for Mr. Wm. Clarke. Mr. W. J. W. Roome, architect, Belfast:—
W. McConnell .. £1,246 .. J. Killen .. £1,187
R. George .. 1,150 .. R. Crawford (accepted) .. 940
[All of Belfast.]

BIRMINGHAM.—For the extension of sewerage works, Baldwin-lane, &c., for the King's Norton Rural District Council. Mr. A. W. Cross, C.E., 23, Valentine-road, King's Heath, Birmingham:—
Jacob Biggs .. £2,865 0 0
Jones and Fitzmaurice .. 2,804 0 0
Curral, Lewis, and Martin .. 2,660 7 8
Geo. Trentham, 24, Heathfield-road, Handsworth, Birmingham (accepted) .. 2,395 0 0
[Engineer's estimate, £2,501 11s.]

BISHOP'S STORTFORD.—House and shop, for Mr. C. E. Smith. Alfred Brett, architect, Bishop's Stortford:—
F. Cannon .. £585 .. Glasscock and Son .. £559
C. Martin .. 569 .. A. Levey .. 550

BRIGHTON.—For the supply of granite kerb, &c. Mr. F. J. C. May, C.E., Town Hall, Brighton:—
Flat granite .. 6in. by 4in.
kerb at per .. granite pitchers
foot run. .. at per ton.
s. d. s. d.
A. Robinson .. 1 11 .. 1 7 6
J. Goodchild and Co., 118, Fenchurch-street, E.C. .. 1 44 .. 1 7 0
J. Gordon and Sons .. 1 13 .. 1 9 6
E. J. Van Praagh and Co. .. 1 53 .. 1 11 0
Blighfield and Co. .. 1 44 .. 1 11 6
A. and F. Munnell, 101, Leadenhall-street, E.C. .. 1 71 .. 1 15 2
J. Mowlem and Co. .. 1 84 .. 1 16 3
W. Griffith .. 1 84 .. 1 16 3
* Accepted for 2,000 ft. of kerb and 400 tons of pitchers.
† Accepted for 1,000 ft. of kerb and 100 tons of pitchers.

BYFLEET (Surrey).—For the erection of a village hall and club, for the committee. Messrs. Ashley and Armstrong, architects:—
Jno. Anderson .. £2,693 .. B. Ingram and Co. .. £2,376
Goddard and Son .. 2,693 .. J. Hunt, Chertsey .. 2,222
Mitchell Bros. .. 2,520 .. * Accepted.

COVENTRY.—For new roads and drainage works, Edgewick, Foleshill, Coventry, for Messrs. Peach Bros. Messrs. Harrison and Hattrell, surveyors, Coventry:—
J. Isaac and Son, .. £1,589 7 6 .. McCarthy & Co. .. £1,244 10 0
T. G. Golby .. 1,420 0 0 .. H. Mason & Son .. 1,242 13 5
Kelley and Son .. 1,260 0 0 .. * Accepted.

EASTBOURNE.—For the erection of a house and shop. Mr. W. H. Raffles, architect, 9, Argyll-street, Regent-street, London. Quantities by Mr. B. Swinstead, 22, Wellington-street, Strand, W.C.:—
Jas. Carmichael .. £1,343 6 2 .. G. Bainbridge & Son .. £1,239 2 5
James Peersless .. 1,340 0 0 .. Son .. 1,239 2 5
M. Martin .. 1,300 0 0 .. * Accepted.

EPSON.—For erecting Conservative Club. Mr. F. W. Ledger, architect:—
Barker .. £2,150 0 0 .. Nottell .. £1,849 0 0
Irwin .. 2,116 0 0 .. Burrage .. 1,839 0 0
Horwood Bros. .. 2,013 13 9 .. Wells .. 1,797 0 0
Holdsworth .. 1,962 0 0 .. Hart .. 1,757 0 0
Potter .. 1,885 0 0 .. * Accepted.

FAWKHAM (Kent).—For the erection of a house. Messrs. Ashley and Armstrong, architects:—
Thomas Knight .. £1,109
House .. 69
Conservatory .. 69
Total .. £1,168
House .. £1,078
Conservatory .. 75
Total .. £1,153
House .. £1,053
Conservatory .. 65
Total .. £1,118

HANLEY.—For erecting Dix's Brewery. Messrs. R. Scrivenner and Sons, architects, Hanley:—
J. Wilton .. £4,939 .. G. Ellis .. £4,670
H. P. Embrey .. 4,895 .. T. Godwin, Hanley .. 4,668
Tomkinson & Betteney .. 4,883 .. C. Cornes .. 4,445
Bennett Bros. .. 4,768 .. J. Bagnall .. 4,425
J. R. Foxall .. 4,750 .. J. Cope .. 4,300
* Accepted.

LISBURN.—Extension of Rosevale Home Laundry, for Mr. T. J. Porter. Mr. W. J. W. Roome, architect, Belfast:—
D. McHenry, Dun- .. £2,432 .. Lisburn (accepted) .. £1,800

LONDON.—For the erection of two warehouses on a site at the corner of Golden-lane and Hatfield-street, E.C., for Mr. W. R. Sutton. Mr. John Groom, architect. Quantities by Mr. Henry Theobald, 48, Finsbury-pavement, E.C.:—
Mowlem and Co. .. £17,258 .. Mattock Bros. .. £15,791
Downs .. 16,278 .. Kilby and Gayford .. 15,736
B. E. Nightingale .. 16,355 .. J. Greenwood .. 15,637
Woodward and Co. .. 16,327 .. Grover and Son .. 15,468
Lawrence and Son .. 16,200 .. H. L. Holloway .. 15,440
Stimpson and Co. .. 16,149 .. * Accepted.

LONDON.—For rebuilding Nos. 9 to 27, Fitzroy-place, N.W. Mr. A. E. Hughes, architect:—
Woodward .. £7,559 2 6 .. Higgs and Hill .. £6,984 3 0
Williams .. 7,425 2 6 .. Chessum .. 6,919 2 0
Hall Beddall .. 7,374 1 0 .. Downs .. 6,683 3 0
Shurmer .. 7,247 2 0 .. Faulkner .. 6,527 2 6
Webber .. 7,080 2 6 .. * Accepted.

LONDON.—For the erection of St. John's Park Mansions, Tuffnell Park. Mr. S. Perks, architect:—
Lidstone .. £7,358 .. Symes .. £6,650
W. Shurmer .. 6,984 .. Johnson .. 6,494

LONDON.—For alterations and additions to the "Windmill" public-house, Uxbridge-road. Mr. H. J. Wakley, architect:—
Higgs .. £3,700 .. Shurmer .. £3,194
Scrivenner .. 8,563 .. Antil .. 8,100
Patman & Fotheringham .. 8,395

LONDON.—For rebuilding the "Freemasons' Arms" public-house, Kensington. Messrs. Bird and Walters, architects:—
Joslin and Young .. £3,670 .. Beer and Gash .. £7,725
Williams and Sons .. 8,150 .. Tomms .. 7,719
W. Shurmer .. 7,990 .. J. E. Todd .. 7,690
Lowell and Lightfoot .. 7,943 .. Ance .. 7,660
Lawrence .. 7,889 .. Burman .. 7,598

LONDON.—For rebuilding the "Thomas a Becket" public-house, Old Kent Road. Mr. R. Wilcocks, architect:—
Lascelles .. £11,678 .. Kilby and Gayford .. £11,035
Stimpson .. 11,560 .. Eddie .. 10,748
Maddison .. 11,526 .. Patman and Fotheringham .. 10,195
Shurmer .. 11,152
Antil and Co. .. 11,145

LONDON.—For erecting a factory, St. Paul's Wharf, Shadwell. Mr. G. Drew, architect:—
Clarke and Bracey .. £4,837 .. Patman and Fotheringham .. £4,596
Yerbury .. 4,720 .. Ashby and Horner .. 4,488
C. Cox .. 4,669 .. Wood .. 4,487
W. Shurmer .. 4,634 .. Higgs and Hill .. 4,484
Nightingale .. 4,630 .. Harris and Wardrop .. 4,397

LONDON.—For building a factory, Golden-lane. Mr. J. W. Stevens, architect:—
Reason .. £4,827 .. Stimpson and Co. .. £4,373
Shurmer .. 4,662 .. White and Co. .. 4,335
Leath and Harris .. 4,533 .. Castle .. 4,248
Mattock Bros. .. 4,532

LONDON.—For alterations, &c., to the "Island Queen" public-house, Pentonville. Mr. H. H. Tasker, architect:—
E. Lawrence and Son .. £3,488 .. Edwards and Medway .. £3,347
Barrett and Power .. 3,474 .. Beer and Gash .. 3,171
W. Shurmer .. 3,450 .. Hunt and Son .. 2,536
Willmott and Sons .. 3,388

LONDON.—For the erection of two warehouses on the site of Nos. 40, 42, 44, and 46, Scrutton-street, Shoreditch, E.C., for Mr. W. B. Sutton. Mr. John Groom, architect. Quantities by Mr. Henry Theobald, 48, Finsbury-pavement, E.C.:—
W. Downs .. £10,490 .. H. L. Holloway .. £9,473
Scrivenner and Co. .. 10,376 .. Grover and Son .. 9,442
B. E. Nightingale .. 9,985 .. J. Greenwood .. 9,368
Kilby and Gayford .. 9,736 .. Mattock Bros. .. 8,977
Stimpson and Co. .. 9,600 .. * Accepted.

LONDON.—For pulling down and rebuilding Nos. 5, 6, and 7, Singer-street, Shoreditch, E.C., for Mr. A. Flint. Mr. John Groom, architect. Quantities by Mr. Henry Theobald, 48, Finsbury-pavement, E.C.:—
Stimpson and Co. .. £7,770 .. Lawrence and Son .. £7,362
Kilby and Gayford .. 7,736 .. J. Greenwood .. 7,261
H. L. Holloway .. 7,636 .. Grover & Son .. 7,226
Mattock Bros. .. 7,391 .. * Accepted.

LONDON.—For rebuilding "The Eagle" public-house, Chobham-road, Stratford, E., for Messrs. Savill Bros., Limited. Mr. Henry Poston, architect, 39, Lombard-street, E.C. Quantities by Messrs. R. L. Curtis and Sons:—
J. and H. Cocks .. £6,350 .. Hearle and Farrow .. £6,328
Gregar and Sons .. 6,750 .. A. Read .. 5,996
W. J. Maddison .. 6,550 .. G. E. Todd and Co. .. 5,933
* Accepted.

LONDON.—For the erection of a warehouse on a site in New-street, at the corner of Hatfield-street and French-alley, Golden-lane, E.C., for Mr. W. R. Sutton. Mr. John Groom, architect. Quantities by Mr. Henry Theobald, 48, Finsbury-pavement, E.C.:—
Downs .. £8,890 .. Mattock Bros. .. £8,585
Stimpson and Co. .. 8,700 .. Kilby and Gayford .. 8,536
Patman and Fotheringham .. 8,621 .. B. E. Nightingale .. 8,447
Ingham .. 8,600 .. Grover and Son .. 8,436
H. L. Holloway .. 8,600 .. J. Greenwood .. 8,383
* Accepted.

MACCLESFIELD.—For alterations to school buildings, for the Corporation. Mr. James Stevens, architect, Brook Bank Macclesfield:—
Roylance and Co. Ltd. .. £3,600 .. A. Frish, Macclesfield .. £2,876
Hulse .. 3,292 .. J. Matthews .. 2,537
Cotterill .. 3,233 .. * Accepted.

MIDDLETON (Lancs.).—For the erection of a branch store and three dwelling-houses, &c., Mills Hill, for Middleton and Tonge Co-operative Society. Mr. F. W. Dixon, architect, Travelyan-buildings, Manchester:—
William Pollett .. £1,444 10 10 .. Jonathan Parting .. £1,385 0
E. Partington & Sons .. 1,440 0 .. ton .. 1,374 10
Grundy and Co. .. 1,420 0 .. F. Jackson and Sons .. 1,374 10
* Accepted.

MORECAMBE.—Accepted for new church, Sandylands, Morecambe. Messrs. Austin and Paley, architects, Lancaster:—
J. Edmondson, Morecambe .. £3,911

NEATH (Wales).—For the erection of schools, Gnoil Park-road, for the School Board. Mr. J. Cook Rees, architect, St. Thomas's-chambers, Neath. Quantities by architect:—
Howells Bros. .. £12,032 .. Walters and Johns .. £11,150
Morgan Cox .. 11,998 .. A. George .. 11,121
Watkin Williams .. 11,699 .. Wm. Daniel .. 11,060
D. E. Davies .. 11,600 .. John Rees .. 10,989
Henry Billings .. 11,550 .. D. Jenkins .. 10,989
Thomas Watkins .. 11,235 .. J. Davies .. 10,670
Edward Groom .. 11,160 .. C. and F. Gaen, Port Bennett Bros. .. 11,150 .. Talbot (accepted) .. 10,580

PLYMOUTH.—For the erection of blocks of dwelling-houses, Howe-street, &c., for the Corporation. Mr. J. Paton, Borough Engineer, Municipal Offices, Plymouth:—
Shellabear and Son .. £19,820 .. A. N. Cole .. £17,716
H. E. Skinner .. 18,819 .. W. E. Blake .. 16,737
T. May .. 18,780 .. W. Trevena .. 16,200
Pethic Bros. .. 18,482 .. Wakeham Bros. .. 16,159
Goad and Co. .. 18,472 .. * Accepted.

SOUTH SHIELDS.—For rebuilding the "Britannia" Hotel, Charlotte-terrace, for Messrs. J. Rowell and Son, Limited. Mr. J. W. Donald, architect, Russell-chambers, South Shields. Quantities by Mr. J. P. Allen, Newcastle:—
J. and W. Lowry .. £4,378 0 0 .. W. H. Brown .. £3,696 14 5
N. W. Maughan .. 4,285 19 9 .. S. Shariff .. 3,695 0 0
J. C. Hope .. 3,995 0 0 .. R. Harper .. 3,645 4 8
J. Moore .. 3,963 0 0 .. E. Allison, Whit-W. Christie .. 3,820 3 0 .. burn .. 3,568
W. B. Ingram .. 3,808 5 7 .. * Accepted.

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The New Government Offices. "We have to build not only for temporary needs, but for posterity. We have to beautify London with edifices which shall satisfy the æsthetic tastes of ourselves and those who shall come after us, and be a perpetual source of pleasure and glory for men claiming to belong to 'no mean city.'" This is the moral laid down by

Office is at the present time located in eleven different houses, whilst the Board of Trade occupies eight or nine, and the Home Office, the Local Government Board, and the Education Department are also inconveniently accommodated. In reading the scheme as laid before Parliament, one important matter stands out ominously. There is to be no competition for the design or for the ground plan. The work is to be relegated to the official architects, and outside skill is to forego its opportunity. The reason alleged, of course, is that architects beyond the Governmental sphere have not a sufficiently intimate knowledge of the interior requirements of the various Departments. "Outside architects," says Mr. Labouchere in effect, "might give us a thing of beauty in exterior design, but in interior inconveniences it would be an abomination for ever." Mr. Labouchere would no doubt point to the Foreign Office in support of his theory. But the defects there are easily avoided in future, and it is a matter for regret that the Government will not avail itself of the greatest architectural skill of the day. We look forward to the result with grim forebodings.

A CERTAIN commentator on Thoreau, Hardy Jeffries, and other writers—who have apostrophized the life of the fields, of the hills and hedgerows, and the sounds native to the woods and moorlands—has pleasantly illustrated how variant are the ways in which Nature appeals to the mind and emotions of mankind; but no one, perhaps, has put this quite so sympathetically as that monkish chronicler of the middle ages who likened men's souls to many stringed instruments over and through which Nature carelessly plays, until the soul realises, selects, and recreates in its own way beauty or ugliness. . . . To the modern architect, whose work lies in the heart of a great city, Nature appears too remote to influence his thought in any way, even if he occasionally takes a day in the country lanes, or makes a short stay in the neighbourhood of Hardy's Wessex. He has become so saturated with the forms of the past that the hints Nature continually offers are rejected unconsciously, his mind—cramped with mouldings,



A STUDY FROM THE LIFE. AT THE ARTS AND CRAFTS SCHOOL, REGENT STREET.

the Telegraph, and the occasion which has unearthed it is the debate on the new Government Offices scheme. How far is the ideal likely to be realised? We confess that the experience of recent years does not inspire confidence. Architectural works of the first magnitude which have been carried out in London during the past few years have one and all been severely maligned—and, perhaps, for the most part, rightly so. Whether it be New Scotland Yard, the Law Courts, the Albert Hall, the Whitehall Offices, the new Admiralty, or railway termini—all alike have served, in the hands of many, to discount the architectural skill of the later Victorian era. Now a new enterprise of national importance is on foot. Driven by dire necessity, the Government has embarked upon the expenditure of two and a half millions in providing proper accommodation for various Governmental Departments, propounding a scheme which, by widening Parliament Street, will improve one of the approaches to Parliament, and, by the erection of noble façades, "add very largely to the architectural beauty of the Metropolis." The necessity for the undertaking is shown by the fact that the War

Whether the design of the new offices will harmonise with the Gothic of the south or with the pseudo-classic of the north of Charles Street seems to be a matter of concern only to Sir William Harcourt. The assertion of the Leader of the Opposition that "it would be impossible to conceive places less adapted for the purpose for which they were intended" than the great block of buildings between Whitehall and St. James's Park is not to be gainsaid; but that utilitarianism which demands the greatest attention to internal planning should not look indifferently upon architectural dignity and beauty. It is much, however, that the Government is about to augment London's Architecture. London is perhaps poorer in handsome streets and architectural beauties than in anything else: in this respect we are out-rivalled by many third or fourth-rate cities abroad. We hope, therefore—in face of our fear—that the authorities will see to it that the new public offices shall be worthy of the premier city of the world, for it cannot be beyond the ability of our best architects to give to the country a building which shall combine interior convenience with exterior beauty.

H. C.

windows, doors, each in their special pigeon-hole, and numbered like a manufacturer's list of mouldings, ready for use when occasion calls—rejects the suggestions of the external world. Of all the architects to whom we turn with pleasure in these unregenerate days none have loved Nature in such a whole-hearted fashion as the late J. D. Sedding, and, whenever circumstances contrive to land the wayfarer in the vicinity of Sedding's churches, he knows that somewhere amid the old, will peep out (as he puts it in his work on Art and Handicraft) that "mingled charm of land and sea; the wild sea board, the noble cliffs, the romantic savagery of the moors—the interest of grotesque shapes of signs of old welter, of Nature's grand improvisations in the prodigious days when she hurled the rocks from height to height, threw up tall, pinnacled fortresses by the edge of the sea, fashioned solemn sanctuaries, carved headlands into whimsical shapes, cut bridges and chains for the giants out of the solid rock, scooped out uncanny caves and monster granite basins or daintily poised the logan rock." Sedding is here writing of Cornwall, but whether we find ourselves on the moorlands in the north,

the downs of Wiltshire, or among the hills and valleys of Devonshire, each locality appeals to the mind in its own particular way and has its own suggestions for the architect. Some day, says Sedding, an English Baron Hausmann will appear, and transform the slums of our manufacturing towns; but if that means reducing our street Architecture to the unvarying monotony of modern Paris, then from such a catastrophe let us be delivered. Jeffries, in writing of Paris, says: "The street Architecture of Paris consists of two parallel lines. In sunshine and shade the sides of the street approach in an unvarying ratio. A cloud goes over and the lines do not soften. The Architecture conquers—is always architectural—it resists the sun, the air, the rain, being without expression. The houses seen from one end present precisely the same façade as they did at starting. Each house is exactly the same height as the next. Nothing projects, no bow window, window balcony, or gable." It is all very dull and respectable. "All geometry and white paint." This is possibly exaggerated, but the more we understand the peculiar "localness of English Art" the less shall we be able to contemplate with equanimity the use of forms and fancies that have not, to quote Sedding again, "a tang of the soil." G. L. M.

**"Julius Cæsar,"
Artium Magister."**

"With scene-painting like that, this Princess's Theatre might do more for Art-teaching than all the galleries and professors of Christendom."

JOHN RUSKIN.
Feb. 16, 1884.

It was in a letter to a popular actor-manager, anent the production of "Claudian," that the author of "Modern Painters" wrote the above sentence, the importance of which it is difficult to over-estimate. To every student and lover of Art such words, from such a man, must conjure up visions of possibilities which it were well not to undervalue. The production of "Claudian" is so identified with the name of the late Mr. E. W. Godwin, that architects, as a body, should be particularly enthusiastic over any stage representation which furthers the Art which Mr. Godwin did so much to enhance. Fourteen years have elapsed since he designed the scenery and costumes for the production of "Claudian" at the Princess's Theatre—fourteen years which have produced countless representations of plays mounted with a lavish hand, and furnished us with some exquisite examples of scenic art. There can be no doubt that in the art of scene-painting England is paramount among nations. No one can approach her in the stage scenery which is furnished by artists like William Selbin, Hawes Craven, Walter Hann, W. R. Beverley, and others. But it requires more than a scenic artist to make a stage picture, and it is for this reason that names like those of E. W. Godwin and Alma Tadema claim the gratitude, not only of the ordinary playgoer, but of everyone who desires to educate the taste of the great British Public. It is therefore with gratitude that we turn to Mr. Tadema and to Mr. Tree, for giving us, in the present production of "Julius Cæsar," pictures which not only charm our eyes with their exquisite beauty, but satisfy us by their archaeological correctness. It is not often, even in these days, that we get a theatrical manager to incur such an enormous outlay of time and money as Mr. Beerbohm Tree has done in this production. Although little encouragement is given to managers of a theatre to stage their plays correctly as well as artistically—the public as a rule being entirely indifferent on the subject, yet it is impossible to imagine that a production like Julius Cæsar will not bear fruit, the fruit

which John Ruskin predicted fourteen years ago. Scenes like "The Senate House," "Brutus's Orchard," and "The Forum," leave an impress on the mind which is not easily erased. It seems imperative for architects to visit this great production—such an education in vistas, grouping, and colour, dare not be neglected. Amid the strange mistakes and incongruities of most stage pictures, even those produced by the very best of our theatrical managers, "Julius Cæsar" stands well-nigh flawless. The great blemish in the last act, where a futile attempt is made to realise a battle-scene on the plain of Philippi, is easily passed over in the pleasure of the preceding pictures. Mr. Tree has already given a professional *matinée*. One wonders if the Royal Academy, or Architectural Association, could summon up the energy to arrange a performance for Art students. One thing is certain, there would be no lack of enthusiasm amongst the members of the audience. H. S. M.

**PICTURES OF MODERN DUTCH
ARTISTS.**

"PICTURES of Modern Dutch Artists" constitute the present exhibition at the Hanover Gallery. It is curious to note how the fame of the Netherlands of to-day grows and grows in England, sober in general tone as is their luminous colouring, sad and solemn as are their everyday subjects and their realistic landscapes. No modern school sacrifices so little to catch the suffrages of the less artistic section of the public, or shows more real power with less of mere bravura. "The Silver Moon," though rather metallic in quality, is one of the best of Mesdag's later works. He here devotes himself almost exclusively to the loving study of sea and sky, and luckily refrains from stocking his picture with those fishing boats which, Dutchman though he is, he manages so ill, and places with so imperfect an instinct for composition. We doubt, however, whether the picture at the Hanover Gallery is rightly named. A noble production of Josef Israëls' old age is the important canvas, "Carrying the Anchor," which looks much better than it did two years ago, on its first appearance at the Salon of the Champ de Mars. Superb is the onward movement of the two weather-beaten fishermen, who wade through the surf bearing shorewards the anchor of their boat; admirably true the agitated movement of the cheerless grey sea, with its foaming white crests. The impression conveyed is that of unintermitting toil, patiently yet sadly borne, of perpetual joyless battle with the crushing forces of Nature. In the famous "L'Homme à la Houe," of Jean-François Millet, the central impression given is of the same order; but it is there underlined with a much more deliberate emphasis. And, moreover, there we may read beneath submission a mute revolt. By Mauve is a powerful sketch, "The Labourer," which distantly recalls, though less in design than in spirit, this very picture by Millet. Bosboom has all the air already of a Dutch "old master"; "A Dutch Church" here is a capital example of his undemonstrative, yet very genuine, Art. The large example of Artz, "By the Sea"—one of the humble love-idylls that modern painters dearly love to render—is relatively poor and expressionless; it is made clear that his charm evaporates when he is dealing with figures on something like the scale of life.

THE result of the poll which has been taken at Plymouth in regard to the Corporation's proposals to effect improvements in the harbour (or Cattewater), and make docks, wharves, &c., at a cost of upwards of a million pounds, has been made known. Approval of the scheme has been expressed by 8778 voters, whilst 5933 voted against it.

**EXAMPLES OF GREEK
AND
POMPEIAN DECORATIVE WORK.**

By J. C. WATT.

THE drawings reproduced in this book have been made with great care and delicacy, and are in most cases excellent. They are many of them the full sizes of the originals, and are accompanied by sections of mouldings and detailed measurements when smaller, so that it would be possible in many cases to make reproductions from them of the objects illustrated. The Pompeian section contains many drawings of tall candelabra and vases, made of bronze and damascened with copper and silver, which have most of them been published in the Museo Borbonico, though not with the complete detail which Mr. Watt gives. One of the most successful is the two-page plate, No. 58, which shows a bronze vase inlaid with silver and with handles formed of two much convoluted stems which spring from two female heads affixed to the lower part of the body of the vase, the complicated and involved curves of which are rendered with great precision and success. Full size sections of all important parts are given on the same plate. One sees both in this part of the book, and in the Greek section, how much variety was allowed, not only in detail but in general proportion, and not only in the ornament of less architectonic decoration but in capitals, in the proportion of mouldings and in their enrichment. The purist may call the work debased, but it shows that the style was living and more elastic than the later Renaissance architects would allow. Examples are given of Ionic capitals showing the greatest variety in the spacing, in the proportions of the volutes to the mass, and in the construction, while on plates 1 and 2 are sections of mouldings from Olympia, some of which are barely recognizable as Greek. The motifs of the sculptured ornament are few, but Mr. Watt gives sufficient examples to prove that they, too, could be treated in many ways, and the addition of colour, to which considerable attention is given, must have enabled the designer to obtain any desired variety in effect. The colours used were few in number—black, brown, and buff, or black and reddish-brown, or deep purple, black, and olive-green on a buff ground, or an olive-green and claret-red on white marble, with circles of salmon-red; in only one case has a trace of gilding been noted used in conjunction with green. All these colours are low-toned and rather sober, and the effect must have been rich and splendid. In connection with this matter of colour, the pavements in Opus Signinum from Pompeii may be mentioned (Plate 40), a kind of work which is suggestive for use now-a-days. Into a red cement ground, black and white tesserae are inserted in delicate meander and interlacing patterns, varied by spot and scale fillings. The tesserae are about $\frac{3}{16}$ in. square, and are set anglewise upon the line. This is a mode of flooring which might be used in entrance halls with very good effect. It is curious to note how the direction of decorative design changes with the centuries, so that what once appeared the obvious thing to do is held to be dull if not indeed inadmissible. No designer would now produce the extraordinary mixture of human and animal forms, which, in Roman times, so often did duty for the terminations and commencements of the handles of vases, etc., of which Mr. Watt gives some examples. Again, the feet of tripods, candelabra and braziers, show a great lack of invention, and to our eyes very often an awkwardness of composition, though they so much resemble each other in treatment that it is evident that they were executed without trouble or very much consideration; while even the authemion with its accompanying scrolls, beautiful as it is, becomes a weariness when on an intelligible scale from the constant opposition and repetition of the forms composing it. S. S. G.

["Examples of Greek and Pompeian Decorative Work." By J. C. Watt. B. T. Batsford, High Holborn.]

PICTURESQUE CITIES

AND

Monasteries of the North of Spain.

I. BARCELONA.

By F. HAMILTON JACKSON.

A LONG the whole sea front of Barcelona run the quays, as well as round the harbour by Barceloneta and on the other side of the port. Behind these quays is a fine promenade, planted with palms and other trees of considerable size, and with beds of flowers to enliven it with touches of colour, along which are scattered many seats to tempt the promenaders. It is called the Paseo de Colon or de las Acacias, according as you walk farther from or nearer to the sea, and commences under other names beyond the railway station for France, at the Park in which the Exhibition was held a few years ago, terminating in the Plaza de la Paz, from the centre of which the monument to Columbus rises—a lofty column surmounted by a figure which points out to sea with its raised right arm. From this point the Rambla turns off to the right, another broad street planted with shady trees down the centre, beneath which one may walk with comfort at any hour of the day, and with roadways at either side, along which tram lines run. It follows the line of the old walls, dividing the older city from the newer part. Under these trees the flower market is held, where for a few pence masses of beautiful flowers may be bought, while a little further on is the bird market, where parrots and song birds and all that they require when kept in captivity may be obtained. On arriving at the large Plaza de Cataluna, one may turn to the right, and passing down the Ronda de San Pedro to the railway station for Lérida, and again turning to the right towards the Park, the circuit of the older part of the town will have been made. Outside this line are very few things of archaeological interest. The hospital of Santa Cruz, and the two churches of San Pablo del Campo and S. Pedro de las Puellas—the Atarazanas, exhaust the list.

But there is a much narrower limit within which the oldest buildings of Barcelona are to be found—for it is said to have been founded by the Carthaginian Hamilcar, surnamed Barca, and thence called Barcino. The Punic city was small, and only occupied the hill Taber, just the site around the cathedral. Augustus Cæsar made it a colony, and called it "Faventia Julia Augusta Pia Barcino." There are very few Roman remains to be seen. In the Calle del Paradis are some columns built up in houses which are supposed to have been the termination of the aqueduct from Collcerola, of which an arch remains in the Calle de Capellans, and there are various fragments of sculpture scattered here and there. It was taken about 409 A.D. by the Gothi-Alani, and Ataulfo, the first king, chose it as his court, making it the capital of Hispano-Gotha. At this period money was coined there, with the legend "Barcinona," and two councils were held in the city, in 540 and 599. When the Moors, under Abdul-Aziz, destroyed Tarragona in 713, Barcelona capitulated, and became the metropolis, taking the place of that city. They did not retain it long, however, for Charlemagne and his son, Ludovic, expelled "the infidel" in 801, and then added the city which he had come to free to his Duchy of Aquitaine, of which it became the head. After this it was governed by counts, who in 874 became hereditary, when Charles the Bold made it an independent kingdom to reward Wilfred el Velloso, who had aided him against the Normans. This Wilfred—called "the Hairy," because he had hair even on the soles of his feet—is said to be responsible for the arms borne by the counts,

and which the city of Barcelona still bears—four bars Gules with a S. George's cross argent. He drew his blood-stained fingers across his shield after a battle with the Normans, and so blazoned his arms in true warrior fashion.

Ramon Berenguer IV. united Catalonia to Aragon by marriage with Petronilla, the heiress of the latter kingdom. Under him Barcelona was the rival of Genoa and Venice, and the emporium of Southern Europe. It was thronged with Provençal troubadours, and councillors and statesmen, who framed the laws of the "Consulado del Mar," a commercial code which dates from 1279, and was respected and imitated everywhere.

It was early a centre of learning, and one of the first cities in Spain in which printing was made use of, and at the present day some of the best Spanish publishers are to be found within it. Here also in 1543 a ship of 200 tons was launched, which moved by steam. The inventor was one Blasco de Garay, and the experiment took place in the presence of a committee named by Charles V. and Philip II. The King's treasurer, Rávago, was hostile, and drew up an unfavourable report, so the matter went no further, though the inventor had all his expenses paid and a present made to him of 200,000 maravedis. His secret died with him, but the memoir at Simancas on the subject seems to say that the trial was successful, though it is whispered that the paddles were moved by men and not by steam. Cervantes, who knew every town in Spain, describes the city enthusiastically as "the flower of the beautiful cities of the world, the honour of Spain, the jewel and delight of its inhabitants, and the satisfaction of all that a curious and discreet desire can ask a great, famous, rich and well-laid out city to be!" The climate is mild and equable—the heat in

summer rarely being greater than 87deg., or the thermometer in winter falling below 28deg. while the average of rainy days in the twelvemonth is but sixty-nine!

The cathedral is the most interesting structure in Barcelona, and to it the attention should first be directed. It is built on the site of a Pagan temple, and is the third church which has stood in this place, the first stone having been laid by Jaime the 2nd, in 1298. It is a typical example of the Ecclesiastical Architecture of Catalonia, which differs considerably from that of other parts of the country. Here are the flight of steps leading to the west front, the belfry towers, the lofty roof supported by slender piers, the fine painted glass; though the cimborio, the lantern usually placed over the crossing of the nave and transepts, is at the west end of the nave. Outside of the nave with its aisles are chapels between the flying buttresses, above which is a sort of gallery, the vaulting being at the height of the aisle vaults with the principal windows just below it. This arrangement produces a very fine effect both in the lighting of the church and in the cross views which one gets when looking from the crossing towards the aisles. The windows of the chapels look into chapels in the cloisters, thus telling as light spots from within and as dark piercings from without. Below the organs, and in other places also, are Saracen's heads, carved and painted in their natural colours—an eccentric ornament.

Here, in 1519, Charles V. celebrated an installation of the Order of the Golden Fleece, the only one ever held in Spain. The walls were hung with rich tapestries and velvets. On one side rose the vacant throne of Maximilian I., canopied with black velvet hangings. On the opposite side, on one of brocade, sat Charles V., then only King of Spain, and

Archæological
Museum

Barcelona

SKETCHED BY F. HAMILTON JACKSON.



FUENTE DEL OCA, CLOISTERS, BARCELONA.

around him were grouped Christian of Denmark, Sigismund of Poland, the Prince of Orange, the Dukes of Alba, of Frias, of Santa Cruz, and the flower of the nobility of Spain and Flanders. The arms of the Knights Companions, and of our Henry VIII. among them, are blazoned on the stalls, the canopies of the upper row of which were carved by two German sculptors in 1487. They are beautiful, but the chapter grumbled at them and refused to pay the full price agreed upon. The lower row was sculptured by Matias Bonafé in 1453. A curious clause occurs in the agreement between him and the chapter, by which the sculptor was forbidden to introduce images, figures, or beasts of any kind, and to limit himself to leaf ornamentation. There is an interesting staircase leading to the pulpit with a traceried handrail and open ironwork door. The trascoro is the work of Pedro Velar of Zaragoza, from the designs of Bartolomé Ordano. It consists of white marble reliefs of subjects from the life of S. Eulalia between Doric columns. The bishop's throne has a lofty canopy of excellent workmanship in the Gothic style. Under the high altar is an open crypt, the Chapel of S. Eulalia, the tutelary of Barcelona. It is raised on several steps in consequence, which approach from each side in a curved form, allowing the interior of the chapel with its rows of hanging lamps to be seen. This was the work of the Mallorquin Jaime Fabre in 1339, who had been directing the building of the Cathedral since 1317. His is the first recorded name of an architect to the chapter. The next is that of Maestro Roque in 1388, and the last mentioned is that of Escuder, in the middle of the fifteenth century. The cathedral was finished in 1448, and is dedicated to the Holy Cross and S. Eulalia, the latter name being added when the saint's body was brought to the church. Around the apse are chapels, arranged like those in the nave, and the windows are filled with excellent glass. San Olaguer lies buried here in his own chapel. He was a Frenchman, and died in 1137. His body was miraculously discovered about 500 years afterwards, "quite fragrant, and uncorrupted, save for the tip of his nose." He was made a saint by Innocent II. in 1675, and since then has been tutelary of the Catalans. His body may easily be seen, dressed in his robes, in the shrine behind the altar. Ramon Berenguer I. and his wife Almudis are buried near the sacristy. Their tombs were re-

stored in 1545. In a chapel behind the apse is a crucifix, called El Cristo de Lepanto. It was carried on the prow of the flagship in that battle, and turned aside to avoid the infidels' bullets, remaining so inclined to the present day.

The beautiful cloisters were begun by Roque in 1388, Gual succeeded him in 1432, and they were finished in 1448 under Escuder. In the centre is the usual garden with palm trees and other tropical plants growing in it, and with two fountains, one of which is surmounted by a little statuette of S. George on horseback fighting the dragon. The other is the fountain "de las Ocas" of the sacred geese, the remains of the canonical aviary. There are still four of them who waddle round the fountain and appear to have an easy life of it, for they disdain to eat bread. The door leading into the cloister through the chapel of S. Lucia is Byzantine, together with the little belfry, which contains the oldest bell in Barcelona. Close by the fountain of S. George is another beautiful entrance doorway with a pieta carved in the tympanum, through which a charming glimpse of the interior may be obtained, the fountain being backed by orange, palm, and other trees, above which appear the lofty arches of the arcade on the other

side of the cloister, an arcade of simple pointed arches without tracery, but enriched with panelling of quatre-foils on the soffit and other panelling on the shafts. Each bay contains a chapel on the other side of the ambulatory, except where the entrance doorways are on three sides, the western wall being plain. These chapels are all closed by rejas of iron, the earliest dating from the fourteenth century, which are the work of members of a guild of ironworkers. They are all excellent, though differing much in design and in the dexterity of the workmanship. Up and down these beautiful cloisters pace many couples in earnest converse—a priest, perhaps, with a poor woman who confides to him her troubles, and asks for advice; two lovers who meet under dangerous conditions, as their furtive glances here and there betray; or two girls who are telling their lesser secrets to each other; and there is a constant stream of people going and coming from a sacristy or baptistery in the corner, and a christening party every now and then, with much laughter and chattering and fluttering of gay ribbons.

There are some curious sculptured effigies of tailors with their shears, and bootmakers with their boots. The guild of the latter—"El Gremio de los Zapateros"—was a benefactor to the cathedral in 1208. Their *casa* covered with symbols, and with a statue of their patron S. Marcos (whom the Catalans preferred to S. Crispin), is quite close to the cathedral steps, while to the right is the canon's almonry. The bishop's palace is to the south of the cloister, and has a few remains of Romanesque arcading.

A little below the cathedral on the other side is a quaint little plaza—the Plaza del Rey—at the end of which is the old palace of the Kings of Aragon and the desecrated Chapel of S. Agueda, which belonged to it, in which the Order of Montesa was instituted on the 19th of July, 1319. The palace dates from the twelfth century, the chapel from the end of the thirteenth. The latter is now used for the Archaeological Museum, and contains an interesting collection of fragments of architectural sculpture, sarcophagi, &c., and a few ancient paintings. The palace was given by Ferdinand to the Inquisition in 1487, just as he made over the royal residence at Zaragoza in the hope that royal associations might induce obedience to the new tribunal, which he intended to be an engine of police and finance. It became afterwards the palace of the Viceroy, then a convent, and afterwards a prison. The archives of Aragon occupy a portion of this building. The municipal archives are the finest in Spain, exceeding 8000 volumes, and commencing with the year 874. Returning by the Bajada S. Clara to the Calle Freneria the ironwork crowning the lofty bell towers of the fourteenth century becomes visible. The bells are hung in a very graceful cage of ironwork fixed on top of the masonry. The great bell was cast in 1393.

(To be continued.)

PLANS by Mr. W. H. Thorp, architect, for the extension and reconstruction of the Lord Mayor's Rooms, at the Leeds Town Hall, have been approved. The proposed structural alterations will cost about £7000.

PLANS have been laid before the Markets Committee of the Leeds Corporation for the carrying out of a further improvement at Kirkgate Market. The large area set apart for market gardeners has recently been covered in, and it is now proposed to extend the roof to Harper Street. The scheme will involve the demolition of the existing retail fish market, but other accommodation will be provided for the displaced salesmen. The estimated cost of the whole improvement is £10,400, including roofing, boundary walls, shops, and stalls.



BAJADA, S. CLARA, BARCELONA.

NEW GOVERNMENT BUILDINGS.

THE SCHEME BEFORE PARLIAMENT.

THE new Government offices scheme was before Parliament at last Thursday's sitting. The First Commissioner of Works explained the details, and, on a division, the House, by a majority of 250, carried a resolution authorising a Bill for the issue out of the Consolidated Fund of sums not exceeding £2,550,000 "to provide for the purchase of land, buildings, and the construction of works and buildings in connection with certain public departments."

The House went into committee on a resolution dealing with expenses for new public buildings in London, Mr. J. W. Lowther (Cumberland, Penrith) in the chair.

Mr. AKERS-DOUGLAS (Kent, St. Augustine's) said that for half a century schemes had been constantly put forward for re-housing certain public departments for which up to the present accommodation had been provided only as necessity arose—a method extremely inconvenient and expensive. Committees of the House had sat and reported, always adversely to the existing practice, and always in favour of providing proper and permanent accommodation in place of those unsatisfactory and temporary premises. The method at present in use was contrary to good administration, contrary to proper control, and contrary to economy. He could not give the committee a better illustration of the inconvenience of the existing system than the present condition and situation of the War Office buildings. The War Office buildings were never designed for use by a public department. They were

A COLLECTION OF OLD HOUSES,

scattered over a large area. Many of them were ill-adapted for their purpose, were not too healthy, and certainly not too well ventilated. The War Office was located in something like eleven different houses, which were situated all over this portion of London. The Board of Trade was housed likewise in eight or nine different buildings. The Home Office, the Local Government Board, and the Education Department were similarly situated. Under such circumstances how could they expect good administration or proper control? With regard to the question of economy, while they were hiring these temporary buildings they were allowing large plots of land, most suitable and convenient for the erection of public buildings, to lie idle. It appeared from the evidence before the Select Committee of 1896 that while the country was paying not less than £16,000 for temporary office accommodation, quite irrespective and in addition to the premises on Crown lands, from which it would be released if this scheme were carried, it was allowing land of a larger rental to remain derelict. The rental of the unused land in Whitehall, on which Carrington House formerly stood, and the adjoining wilderness, had been estimated at £10,000 a year, while the vacant land in Charles Street, acquired so long ago as 1866, was in 1892 valued at £130,000. For thirty years, therefore, this land had practically earned no interest. But the loss to the country was not represented solely by the cost of those

TEMPORARY BUILDINGS.

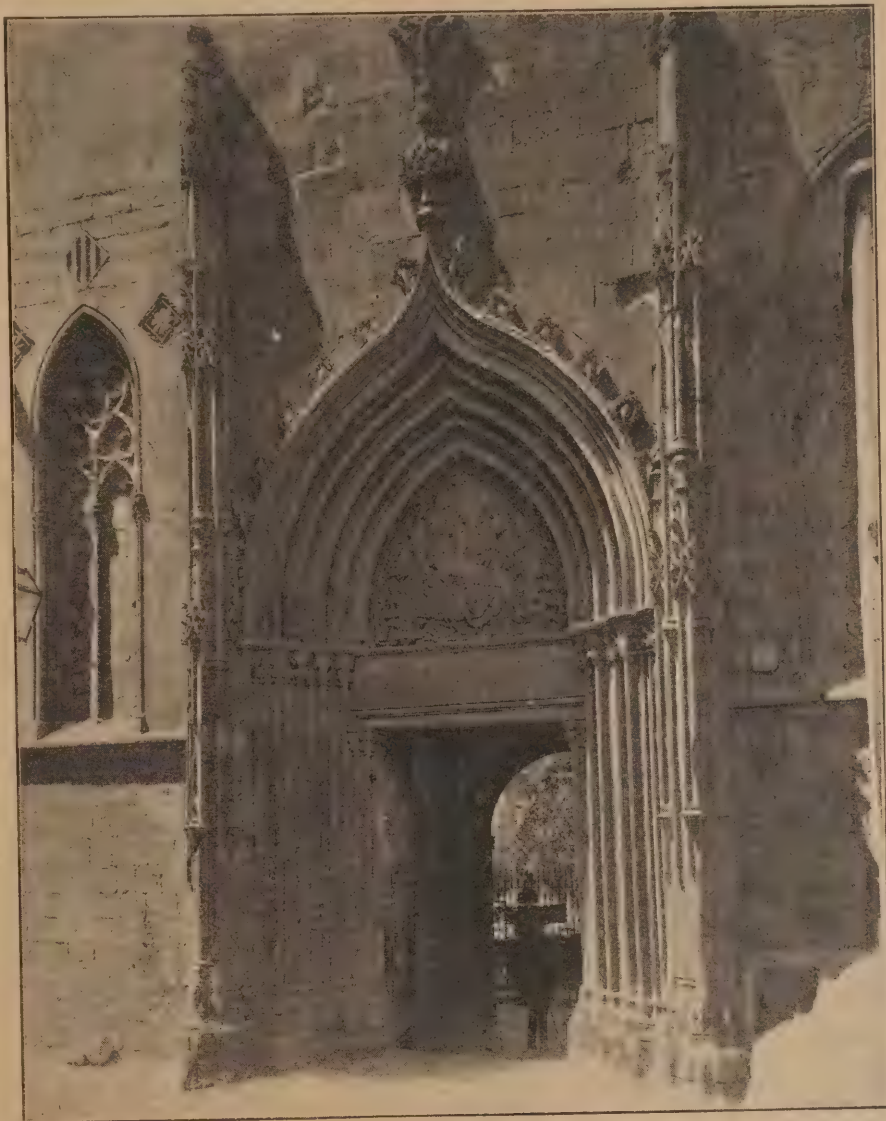
Large sums of money had been sunk in the shaping of temporary premises and leasehold premises to the requirements of offices, whilst the multiplication of caretakers, office-keepers, and the general staffs, tending, of course, to increase the annual estimates, had been the inevitable result of this lack of concentration. The Government had determined to put an end to this state of things, and since they had taken office they had steadily worked up to that end. In 1895 they carried a measure authorising the expenditure of £145,000 for the purchase of the Parliament Street site. In 1896 they obtained another Bill for the compulsory purchase of that site. In the

same year a strong committee was appointed to inquire into and report on the manner in which sites available for Government buildings might properly be utilised for that purpose. In 1897 a Bill was carried authorising the expenditure of £15,000, in accordance with the recommendation of the Select Committee, for the purchase of

THE CARRINGTON HOUSE SITE,

for the erection of the War Office. The committee, which was again reappointed last year, concluded their labours by a further report, in which they recommended the appropriation of the Parliament Street site for the Board of Trade, the Education Department, and the extension of the Local Government Board.

bad weather might stop the work: the money voted the year before might not in consequence be all spent; the balance had to be handed back to the Treasury, and the money had to be re-voted in the course of the next year. Proceeding by Bill also enabled the Government to settle definitely the adoption of a scheme, and to remove it from the dangers of a change of policy, which had been so fatal to the building proposals of the Government in the past. The Government asked first for a sum of £475,000 for the building of the War Office. The Carrington House site was amply large enough for that purpose. It contained an area of 75,000 square feet, which was more than what was asked for by the authorities of the War Office, and which would therefore



PUERTA DE LA PIETA, CLOISTERS, BARCELONA.

The Government had now acquired, or at all events had power to acquire, the whole of the sites recommended by the committee as necessary for the requirements of those departments, and they now asked Parliament to find them the necessary money to proceed with the buildings. The method they proposed to adopt was to proceed by Bill to provide the necessary expenses out of the Consolidated Fund. The advantage of proceeding by Bill rather than by annual estimates was obvious. In all matters connected with buildings it was unwise and certainly uneconomical to proceed haphazard. A recognised scheme ought to be settled, and the work ought steadily to be proceeded with. This course was often difficult if they proceeded in the ordinary way by voting certain sums every year in the annual estimates. The money available one year might not be forthcoming the next. A bad frost or

allow for any further expansion that might be required. The Government further asked for a sum of £600,000 for the erection of the buildings on the Parliament Street site, and another £100,000 for the completion of the purchase of that site. The scheme carried with it the very necessary widening of Parliament Street. The Government also proposed to place in the Bill the money which was still required for the

COMPLETION OF THE ADMIRALTY BUILDING.

As it now stood, £125,000 were wanted to complete the building according to the original plan and estimates; but owing to the very large increase in the Navy within recent years it was necessary to provide for the corresponding increase of the staff at the Admiralty. The Government therefore asked in addition for £150,000 to provide for that extension. They already possessed the neces-

sary site upon which the extension should be placed, and consequently they asked for nothing under that head. They further asked for £300,000 for additional post office buildings. It was proposed to obtain for the accommodation of the post office the building which was now occupied by the Savings Bank Department in Queen Victoria Street. That building was barely large enough for the present work of that department, and was quite unequal to the expansion which would shortly be required. It was unnecessary, in the opinion of the Government, to find accommodation for so large a department as that in the City, where land was very high in price; and they thought the building should be placed further from the centre of London. A site had been obtained at West Kensington; and they proposed on that site to erect a building for the Savings Bank Department. The Post Office would take over the building in Queen Victoria Street, which was near the Central Post Office, and well adapted to the work, and which would enable the Post Office to house in a more convenient manner and with less expense certain departments which were now accommodated

IN UNSATISFACTORY TEMPORARY PREMISES.

Lastly, the Government asked for the large sum of £800,000 for the completion of the buildings at South Kensington in connection with Science and Art. He was quite certain that the committee would admit that the settlement of this question had been demanded both by the House and by the public for many years past. In 1891 the decision was come to to proceed with the building to complete the accommodation for the Art Museum, and for housing the administrative departments of Science and Art. Plans were accordingly prepared by Mr. Aston Webb, and accepted, for a building to occupy the land on the south side of the Museum facing the Cromwell Road; but the resources at the disposal of Chancellors of the Exchequer, on both sides of the House, unfortunately did not permit of the grant of the necessary funds, and the scheme had since then been in abeyance. Since that scheme was formulated, and partly in consequence of the report of the Commission on Secondary Education, it was in contemplation to move to the Education Office the secretariat of the Science and Art Department, and further—in accordance with the recommendation of the Select Committee of last year on the South Kensington Museum—it was decided to remove the official residences and certain other temporary buildings, which was a source of danger from fire. With this additional space at disposal, it would now be possible to provide on the eastern side of Exhibition Road the necessary accommodation for both Science and Art. It was therefore intended to build, in addition to the building proposed in 1891, further buildings which would complete the frontage on the Cromwell Road and Exhibition Road sides; and, in the opinion of the Government, that would amply meet the requirements of both branches for many years to come. These items brought up the total to £2,550,000. He should also mention that there would ultimately be a very considerable set-off to this sum by the lease and disposal of the War Office buildings and sites in Pall-mall and those of the Board of Trade in Whitehall. Their estimated value, together with the capitalisation of the rent now paid for temporary offices, would amount to over £1,000,000. The Government did not maintain that this was a final or complete scheme for

HOUSING THE WHOLE OF THE GOVERNMENT DEPARTMENTS;

but they believed that it met all the present needs of the service. The Government earnestly recommended the scheme to the committee, in the conviction that it would materially facilitate the administration of the public service, greatly improve the approaches to Parliament, and add very largely to the architectural beauty of London. He concluded by moving the financial resolution embodying the Government's proposals for the expenditure of a sum of £2,550,000.

Mr. LABOUCHERE (Northampton) said that it was too often the case, in respect to Govern-

ment buildings, that the architect thought only of the beautiful outside, without regard to the needs of the departments to be housed and the accommodation they required inside. The Office of Works had officials who thoroughly understood what were the interior requirements, and the building of these new offices should be undertaken by the department itself.

Mr. JAMES LOWTHER (Kent, Thanet) wanted to know whether all the ground from Parliament Street to St. James's Park was to be included in the Parliament Street site, or whether a strip was to be left, which would probably have to be acquired at a later date and at a greatly enhanced cost? He also asked whether the Government had considered what a profitable bargain for the country would be effected if the very valuable site of the Post Office buildings at St. Martin's-le-Grand were sold and the Post Office headquarters were established elsewhere.

Mr. DILLON (Mayo, E.) said that the Nationalist members, who were strongly opposed to the enormous sums being voted for the Army and the Navy, were also opposed



CLAY MODEL FROM THE CAST.
ARTS AND CRAFTS SCHOOL, REGENT STREET.

to this increased expenditure on the War Office. While Ireland was claiming a readjustment of the financial relations between herself and Great Britain, it was adding insult to injury to increase the national expenditure by leaps and bounds without attempting to meet

IRELAND'S CLAIM

in any reasonable spirit. England was, no doubt, rioting in the unparalleled abundance of her prosperity, but in Ireland the people were starving, and Irish members resented every increase of expenditure which brought no benefit to Ireland as an outrage on the Irish people. English Radicals seem to have forgotten the traditions of their party. There was a time when no increase of expenditure, especially on armaments, could be made without arousing the opposition of some influential Radical. Now English Radicals were voting nearly half a million for the War Office without having any assurance that there would be an improvement in the administration of the War Office, though repeatedly great authorities had written to the Times pointing out that the waste, inefficiency, and overmanning

of the War Office were a scandal. He was also opposed to the further extension of the Admiralty buildings. He should divide against the resolution.

Sir W. HARCOURT (Monmouth, W.).—I do not agree with the hon. member for East Mayo in his view of economy, nor do I think that question really arises, because when we have determined upon an expenditure for the Army and Navy it is certainly a distinct question whether or not those services should be properly provided with the places in which they are to be administered. That a good deal needs to be done in order to facilitate the administration of the various departments in the State is a thing which anyone acquainted with the matter will readily admit. I think the right hon. gentleman the First Commissioner of Works did rather scant justice to his predecessor in assuming that this was for the first time discovered in 1895, because in the late Administration we had already begun the plans for providing public buildings, and especially doing that work with reference to South Kensington. I only put in that claim. No doubt this is a much larger and more

EXPENSIVE PROPOSAL

than that which we contemplated. I only rise for the purpose of pointing out that this is only the preliminary and necessary financial resolution. Of course, the matter in general and in detail will have to be dealt with in a Bill. Upon the Bill it will be open to us to discuss the propriety of each scheme and the amount to be given to it. I confess some of the sums seemed to me portentous. I think the expenditure of £800,000 on South Kensington is startling. It is double the amount to be spent on the War Office. The right hon. gentleman said he thought these public buildings would not only redound to the advantage of the Administration, but also add to the decoration of the metropolis. I wish I had that confidence. I cannot say that has been the experience of public buildings put up during the last half century. They remind me of the lines of Byron in which it was asserted of certain poetry that "The most recent is the least decent," and I say that each public building in succession seems to me to be

WORSE THAN THE LAST.

There is one thing I hope the right hon. gentleman will bear in mind, a condition which has been totally overlooked in the past, that the building of these public offices should have some reference to the uses to which they are to be put. That is a thing which I can testify has been totally neglected in the great block of buildings which include the Home Office, where I was myself for some years, the Foreign Office, and the Colonial Office. It is impossible to conceive places less adapted for the purposes for which they were intended. I am glad to hear that the modern Admiralty in that respect at all events, is an improvement; and that there are rooms there fitted for the purposes of those who occupy them. Even on a midsummer day, you cannot get from Whitehall into the Foreign Office except through a passage lighted by gas. I do not know that I should regard the police building erected by Westminster Bridge as a decoration of the metropolis. It is rather inferior, in my opinion, to Messrs. Crosse and Blackwell's establishment which faces it on the other side of the water. If we are going to spend two and a half millions of money, or anything like that sum, on modern buildings we should proceed upon some different plan from that which has been adopted in the past, and which has evidently been extremely unsatisfactory. I should like to hear that though the Government take these large sums in the resolution they are not bound by the whole amount.

THE CHANCELLOR OF "THE EXCHEQUER": Oh, no.

Sir W. HARCOURT: There will be every opportunity to discuss all the various items in the Bill, and so far as the resolution merely asserts that a sum of money ought to be economically expended in providing further buildings for public offices, I shall certainly support it.

Mr. J. BURNS (Battersea), as a member of the

two Select Committees which had inquired into Government buildings, said he should support the resolution moved by the First Commissioner of Works. It was not necessary for any member to identify himself with the edification of Tommy Atkins and the military spirit in supporting the motion; neither was it necessary to associate himself with any views as to the financial relations of England and Ireland. He shared the hon. member's views, and yet he supported the resolution. If they wanted to reform the War Office the best way was to bring the officials into

A DECENT BUILDING,

where they would be subjected to the public gaze, and where they should no longer find talent hidden and incompetence obscured. He trusted that in all these new offices the First Commissioner would stipulate that no official residences should be incorporated therein. Any competent chief of a fire brigade would condemn official residences in public buildings as a source of danger. In South Kensington, when the department was crying for increased accommodation, the committee found there were 102 rooms occupied by officials who had absolutely no right to claim house accommodation on that particular spot. He rejoiced that the First Commissioner had the courage to root out those officials stock, lock, and barrel. The outlay of £800,000 for South Kensington Museum seemed to be a large amount for the completion of the buildings, but every foreigner who had seen those buildings commented with surprise on the way in which the valuable collection of treasures was housed there. Looking at the museum from the main road, it struck the onlooker as a cross between a tramway stable and a goods yard. He hoped that the Government would press forward with the completion of the scheme as soon as possible. Before the plans were finally settled he hoped that they would be exhibited in the tea room of the House. He also suggested that a small committee of members familiar with official and municipal administration, conjoined with one or two officials like Sir John Taylor, should be formed to examine those plans.

IN THE LIGHT OF THE CRITICISM

which had now been offered.

Sir H. CAMPBELL-BANNERMAN (Stirling Burghs) said he wished to relate a circumstance within his own knowledge which tended to confirm the view taken by the Government of the necessity of this scheme, while it also supported the criticisms made by his right hon. friend as to the character of some of our recent buildings. In 1874 there was a change of Government, and Lord Cranbrook (then Mr. Gathorne Hardy) was appointed Secretary of State for War. The first thing which Lord Cranbrook did was to go over the office, to the head of which he had been appointed. He was shocked and horrified by the condition of the place, and at the idea that gentlemen should be invited to serve the country in such wretched places as were provided for them. Lord Cranbrook brought the matter before his colleagues. At that moment the large block of buildings now occupied by the Home Office and the Local Government Board had just been completed, and Lord Cranbrook told his colleagues that he would not be responsible for keeping his clerks in such a place as the War Office while this other building was available in which they could be housed, and he added, "I claim the first right to the new building for the officials of the War Office." This claim was agreed to by the Government of the day, but the heads of the War Department, after inspecting the new building, came and said, "Sir, for heaven's sake let us stay where we are, for, bad as our building is, and founded as it is mainly on disused cesspools, and constructed after

THE MODEL OF A RABBIT WARREN,

we prefer it to the ghastly and ghostly uncomfortable, dark, draughty, incommensurable, and inconvenient building which you have been good enough to offer us." That was twenty-four years ago, but the inconvenience had remained. It was a scandal, and it was high time that a new War Office was erected.

This was the opinion formed by experienced public servants of the degree of convenience provided by the most modern building then erected. He agreed with what his right hon. friend said when he declared that they did not want these dark corridors and enormous rooms. The dignity and comfort of a room did not depend on its size, but on its proportion; and nothing was more injurious to the despatch of public business than that public servants should be obliged to work in such places as some of our more modern buildings were found to be.

Mr. COURTNEY (Cornwall, Bodmin), in referring to the removal of the Post Office Savings Bank in Queen Victoria Street, confessed that he had often thought of the terrible waste which was involved in the maintenance of that building. On the main proposal of the First Commissioner of Works, and the withdrawal of £2,500,000 as a surplus which might be applied to the reduction of the National Debt, he thought that greater attention should be given to the machinery for the redemption of the National Debt, and that the committee should not pass the surplus which was to be appropriated under this scheme without some compensating provision being established contemporaneously for the raising within a limited number of years of an annual sum which would repay what was otherwise lost for the purpose of debt redemption.

Mr. T. P. O'CONNOR (Liverpool, Scotland) joined his hon. friend the member for East Mayo in protesting against Ireland being called upon to bear a financial burden in excess of her proper share under the scheme proposed by the Government.

Mr. AKERS-DOUGLAS, in replying to the criticisms offered, acknowledged that he had made an omission in not paying a tribute to the assistance which had been rendered in furtherance of the scheme by his predecessor in office. He shared the opinion of the leader of the Opposition that many of the

PUBLIC BUILDINGS RAISED IN RECENT YEARS

had not given that amount of accommodation which was needed and felt to be necessary. He hoped, however, that the committee would not press him at that time to enter upon points of detail, inasmuch as there would be future opportunities to consider the Bill in Committee. As to the appointment of architects, he said that it was not the intention of the Government to go to public competition on this subject, because he thought it was generally admitted that public competition had failed in the past. He believed that by adopting the policy of themselves, through Sir John Taylor, who would act as their assessor, seeing that the interior of the offices was such as would meet the requirements of the case, and, then, appointing an architect for the purpose of clothing the building, the Government would be most likely to get offices which would meet the requirements of the public service and give a certain amount of comfort to those who were compelled to work in them. He assured the committee that he and his department would use their best endeavours to see that proper accommodation was afforded in the offices and that the buildings had a fit and proper elevation and one in keeping with the surroundings. The right hon. gentleman the member for Thanet had asked what would be the extent of the site. The new Parliament Street would be in alignment, more or less, with the existing Home Office. He said more or less because it might be necessary for architectural purposes to have some going back from the parallel line with the Home Office. It would be bounded on other sides by the buildings of the Institute of Civil Engineers, by Charles Street and Delahay Street. Personally, he would like to have acquired Delahay Street and Charles Street, but he doubted whether the committee would have been in the same frame of mind they were in now if he had asked them for another million of money which that would have cost. They had not thought it right to ask for a larger sum of money than would provide those buildings which, in the interests of the public service, were absolutely necessary. It was the intention of the Government

to remove the official residence at South Kensington. He entirely agreed with the hon. member for Battersea that there should be no official residences in these new public offices, because he held very strongly that an office was very much safer in the charge of a night watchman and fireman than it possibly could be in the charge of an office-keeper who lived in the house and had open grates and other means of creating conflagration. His right hon. friend the member for Thanet also asked whether they had considered the possibility of getting rid of St. Martin's-le-Grand. The Government had not taken that matter into consideration, but they had gone some way to meet the views of his right hon. friend by deciding that the extension of the Savings Bank should be built at South Kensington, where land could be obtained at a cheap price, rather than in the City, where they would have to pay through the nose for land.

Mr. WARNER (Stafford, Litchfield) asked whether the scheme included the carrying through of the Mall into Whitehall?

Sir W. HARCOURT said it had been suggested by one hon. member that the million which would be received for the spaces which would be available when the new offices were built would be deducted from the £2,500,000. Was that so? Would the ultimate charge be £2,500,000, or would it be less by £1,000,000?

Mr. AKERS-DOUGLAS: Less by a million sterling.

Mr. A. H. A. MORTON (Deptford) inquired whether it was contemplated that the design should be such as to enable the possibility of future extension?

Mr. AKERS-DOUGLAS said it was intended that the design should be capable of extension hereafter. The scheme did not include the extension of the Mall, but the Government had decided to open the Mall into Whitehall. They could not do so yet, as the buildings standing there now were in use by the Admiralty.

The Committee then divided, when the numbers were:—

For the resolution... .. 265

Against it 15

Majority —250

The House having resumed, the resolution was reported to it.—*The Times*.

ARCHITECTURE AT THIS YEAR'S ACADEMY. NOTICE.

The Editors of "The Builders' Journal" and of "The Architectural Review" respectively, have arranged for a large number of Drawings to be reproduced in one or other of these Publications, of work to be submitted to this year's Academy. They have also arranged, for the convenience of Provincial contributors to the Academy, to act as Agents for the forwarding of Drawings to Burlington House. Should any further Architects in the Provinces desire us to act in this manner, we should be glad to have their instructions by return of post, together with the originals to be forwarded.

THE old home of the Manchester Committee of the Independent Theatre, the Gentlemen's Concert Hall, is about to be pulled down.

THE Belfast Corporation has decided to establish and equip a technical school at a cost of about £30,000, on the site of St. Anne's Market, belonging to the Corporation.

HERALDIC DRAWING AND ITS ADAPTATION.

By J. D. CRACE.

IN a paper on the above subject, read before the R.I.B.A. on Monday night, Mr. J. D. Crace said that, in the drawing of heraldic devices, one leading principle applied—the necessity of recognising what has to be said, and how to say it simply and directly. The heraldic device was intended to appeal, not to the sensibilities or emotions, but to a simple intelligence, to be rapidly understood. The eagles, lions, roses, or fleur-de-lys of heraldry were not to be thought of as pictorial illustrations of the animal or vegetable creation, but as symbols. The conventional or symbolic representation of the heraldic “charge” conveyed certain limited information at a glance. Heraldry had been described as “out of date,” “antiquated nonsense,” but modern equivalents for the heraldic “ordinaries” might easily be found. The effigies painted on tavern signboards showed at once the name and purpose of the house; the colours of the jockey’s jacket conveyed distinct information; flags, whether for signalling or for distinction, were heraldic. The lecturer cited instances of the ease with which facts about people dead centuries ago could be learned from

THE HERALDRY DISPLAYED ON RELICS

associated with them which had come down to the present day. In decorative heraldry, whether architectural or otherwise, extreme clearness of expression is required; the more so as frequently the examples are distant from the eye, or in positions where other forms more important to the composition must be so rendered as to claim the first attention. The details have also sometimes to conform to cramped and difficult spaces. Allusion was made by the lecturer to the close relationship between the symbolic design of heraldic charges and the less direct forms used in expressing ideas by writing. Looking back to the remote times of Egyptian Art, each of the kings and queens of the various dynasties could be distinguished by the “cartouche” bearing the symbols of that sovereign. That “cartouche,” repeated on the cornice of a temple, was almost as heraldic as the shield repeated on the cresting of an English monument, and its object was virtually identical. The animal devices used as symbols on Egyptian monuments of 3000 years ago had never been surpassed, and should be well studied by the heraldic draughtsman. Though used to convey the sense of words or sounds, they were also used to convey certain information even when writing came into general use. For monumental purposes the well-recognised symbol conveyed the idea more promptly. It is of primary importance that the object representing the idea should be so drawn as to be promptly recognised; and

THE ART OF CONVENTIONALISM

is the art of selecting the most characteristic points, leaving details to be filled in or not according to circumstances. Having shown under what conditions it was permissible to multiply or omit details, and when “naturalism” or fanciful treatment might be indulged in, provided the object represented was as far as possible unmistakable, the lecturer went on to speak of heraldic draughtsmen of the last fifty years who had successfully grasped the problem of sound conventional drawing as applied to heraldry, selecting for mention the names of those deceased—Willement, Pugin, John Powell, James West, Clement Heaton, and William Burges, all in their several ways real artists. So far as heraldic Art was concerned, Pugin was *facile princeps*. In point of design and arrangement his heraldic glass at Westminster was without equal. The lecturer then dealt with the relations between the helm, the crest, the wreath or torse, and the mantling, describing and explaining the origin and purpose of the various parts, and some methods of treatment. Touching heraldry abroad, the Germans had always maintained a love for

heraldic device; and the principal front of the new Parliament House in Berlin is ornamented with two fine heraldic panels, in which the shields are combined with sculpture of very high artistic merit. In Spain heraldry was freely used for the decoration of Architecture—there were notable examples at Burgos and Toledo. Magnificent cloths of state, embroidered with the arms and badges in gold and colour on silk or velvet grounds, were also in use in Spain. Such decorations, the lecturer considered, might be introduced into municipal and other public ceremonials in our own days.

A REALLY FINE HERALDIC CLOTH

would make a much more imposing background to a royal or municipal group than the extemporaneous and tawdry finery ordinarily the expedient on such occasions, and the cost, in the long run, would be less than what is now expended spasmodically on temporary rubbish. As examples of the valuable decorative effect of heraldry in Architecture, the lecturer instanced the blazoned shield in the boss at the intersections of rib-vaulting, or on the hammer-beam of a timber roof, or in some of the high chimney-pieces illustrated in Mr. Gotch’s paper. Having summed up the essentials necessary to good heraldic designing, the lecturer, in conclusion, read some notes furnished for the paper by Mr. George W. Eve, author of the recently published work on “Decorative Heraldry.” These notes touched upon the influence of Architecture on heraldic designs in book-plates, perceptible from the very earliest examples; the value of the panel as a basis of design, as shown in the works of Sebald Behem, Virgil Solis, and others; the extensive use of architectural details in the armorial work of Albert Dürer and his school, and in the elaborate compositions of Jost Amman; and the modifications in treatment the armorials have undergone by the influence of the sculptures and coats-of-arms represented in high relief.—The paper was illustrated with several designs, including the original drawings by Pugin for the heraldic glass in the Houses of Parliament—Mr. J. A. Gotch, proposing a vote of thanks to the lecturer, said of late years there had been a considerably

INCREASED DESIRE FOR HERALDRY.

and therefore it was most desirable that architects should be in a position to draw heraldry well. To his mind, the interest in heraldry did not consist—as it did to some—in a multiplicity of quartering. That appeared to be a vain desire for self-glorification; but it consisted rather in a beautiful rendering of the simplest forms of animal art, so that they did not get unintelligible decoration, but a design which was suitable to the place it occupied, and which was easily read at a distance. Of course they were now, as they always had been, very largely in the hands of the officials of this particular form of Art, the Heralds College of Arms, and it was a great satisfaction to notice the greatly improved methods which were being followed in that institution. Some ninety years ago the kind of arms which they granted were absolutely impossible of decorative interpretation, but he was glad to know that many of the officials there had a great desire, not only for better forms, but also the ability to present them, and in the course of time he imagined, when the control of these things evolved and developed—because, of course, those in high places should actually give a final decision in the matter—they might hope for greater improvements. There was

ONE QUALITY IN HERALDRY WHICH WAS NECESSARY,

and that was vigour, because the whole of heraldic living creatures belonged to the male sex. They never saw a lioness, for instance; they always saw the lion. He thought the only female animal—if it could be called an animal—represented in heraldry was the mermaid. There was another branch of heraldry which was also important, and that was how to impart beauty and interest to commonplace objects. They might say it was comparatively easy to draw an interesting lion, or an inte-

resting pig—they would find one of the designs by Pugin was a pig of the most interesting kind. But when they had to draw a porridge-pot or a wheel, the thing was not quite so easy. As an illustration there was exhibited a Spanish cloth with a wheel which was represented in the perspective, and in a very simple, striking, and graceful manner. It was an important point to remember that in mantling there were always two sides of different colours.

IN REFERENCE TO BOOK PLATES,

there had been a vast number of designs in recent years, but he thought there was a great tendency rather to sacrifice the first object of a book plate for the secondary one of making it beautiful. It seemed to him the first object was that the name of the owner should be at once legible, but in many book plates the name had been the last thing they were able to ascertain. A man’s occupation or favourite hobby was portrayed—things interesting to himself, but not to the world at large—but his name was found in some obscure corner. That seemed to be departing from the heraldic spirit necessary in book-plates. Mr. Crace had struck a right note upon heraldic design, and if they followed his advice they would be able to design heraldry which should be quite distinct—not a copy of the Mediaeval—and yet conveying as much vigour and interest as any that had gone before it. That could only be done by getting thoroughly familiar, not only with the elementary laws of heraldry, but also with the anatomical forms of animals and objects which had to be portrayed.—Mr. St. John Hope, seconding, expressed a desire that on some future occasion Mr. Crace would deal with

THE SUBJECT OF BADGES,

and their treatment. In a great many old wills, inventories, and other documents, he had been struck with the very full way in which badges were used for decoration; and also with the comfortable way in which the badge had been employed on church vestments, altar cloths, hangings, and in every possible place, even in domestic work—in very great hall hangings, on paviers, floors, carvings, wainscoting, roofs, glass, and everywhere else. Pugin was one of the men who in recent years realised their value.—Mr. W. A. Lindsay defended the College of Arms, observing, in reply to the lecturer and Mr. Gotch, that, whilst he agreed as to the absurdity of some of the Crown arms of the last century, whatever fault there was in the college work, it was probably in assenting to what the public asked for rather than in presenting anything to the public. Personally he had been asked to execute certain coats of arms, but had endeavoured to refuse, though it was not always possible when dealing with a public body, and therefore the officials were not always to blame for.

EXCEEDINGLY UGLY DESIGNS.

He hoped the subject of heraldry would receive greater attention. He demurred from the suggestion that the name of the owner of a book should be prominent on the plate. If a book-plate meant anything at all, it was to tell the name of the owner without printing it in letters.—Mr. Wm. White said he supposed that heraldry on a book-plate was intended rather to transmit what was really the owner’s name, but written in heraldry instead of letters. From old shields they received the traditions of the names without any name being attached. As far as he could understand, it was quite a modern invention to introduce the name. The difficulty of ill-representation of heraldic device and its principles was caused by the absurd neglect of the skill of heraldry, as it was a little while ago in reference to the skill of Architecture. The only way to revive it was to have some popular lectures and explanations so that people might understand what was true heraldry.—The President remarked that heraldry was one of the most becoming subjects that could be treated in the Institute or by any society of architects.—Mr. Crace briefly acknowledged the vote of thanks.

Scottish Church Architecture

OF THE

XIV. AND XV. CENTURIES*.

BY HIPPOLYTE J. BLANC.

(Continued from page 112.)

AS formerly noted, while the Scottish churches of this period are designed to have nave, choir, and transepts, in many cases the nave has never been erected. A feature almost confined to Scotland at this time is the polygonal termination of the choir. It is to France, where it was very common, we must look for the prototype, for in English work it is not found in the Late period, though Wells Cathedral possesses it. Of that form we have many examples, some showing externally merely a continuation of the main roof; others projected from the terminal gable of the choir as a bow window. Of side chapels there are several, but they are either formed as quasi-transepts, or, as at Melrose, out of duplicating the south aisle of the nave, as at Coutances. Elgin appears to have had chapels similarly constructed. Other features, such as sacristies and porches, are noticeable in the work of this period—two of the porches, namely, at Linlithgow and Aberdeen, are quite unique for the possession of an upper priest's chamber or parvise with a turret stair conveniently placed to reach them. In doors of this period we have examples of features of nearly all the preceding styles. But it is noticeable that the round arched form is found most frequently through all the periods of Scotch Gothic. In detail of moulding it nevertheless usually conforms to that of the style of the building to which it is attached. Of double or twin doors of the period, we have interesting examples at Haddington and also at Linlithgow, both of totally different character, and seemingly of different dates. Upon this question of dates, however, it is very difficult sometimes to trace the period of execution of the several parts from their mixed character. Defined as are the early periods, it cannot be said that the later are equally so. There is no line of demarcation marking the change from the Decorated to the Third Pointed in Scotland, such as one finds between the Decorative and the Perpendicular in England; the movement is so gradual in Scotland. In external detail

THE SCOTCH DECORATIVE PERIOD

follows largely the suggestions of both England and France. Mouldings are, however, broader in treatment, and carving not generally so fine. There are many exceptions, however, and very often one comes across an interesting monument or sedilia, designed and carved with such richness as to be suggestive of French influence of later date. Of such we have excellent examples in Bishop Kennedy's tomb at St. Andrews and elsewhere. The towers of the period are very interesting, though perhaps not elegant. Placed at the crossing of nave and choir, or at the west end, they are usually sturdy features expressing a great variety of form and finish. They are rarely at this period extended as spires, though the two at Aberdeen Cathedral have spires in rather stunted form. The most interesting form of termination of towers we possess is the crown, as at Aberdeen College and St. Giles's, Edinburgh. Two others existed on a less scale, but were thoughtlessly recommended to be taken down through an unwarrantable fear of their giving way. One was St. Michael's Church, Linlithgow, and the other at Haddington Abbey. The origin of that feature has not been traced, I believe, but one English example, somewhat more elegant than our Scotch examples, exists at Newcastle. It is in the windows, however, that we find the most instructive expression of this period. There are many examples of pure Decorated work at the beginning, but as the fifteenth century progressed, the influence of the French Flamboyant manifests itself a little. The tracery, however, is heavy, often clumsy, and in many

characteristic examples the cusped foliations are wanting. Forms are likewise traceable to English examples of a much earlier period. Instances of geometric design are found at Melrose, Dunkeld, Paisley, Tain, Crossraguel, and Torphichen, and the reticulated pattern is found at Dunfermline Refectory. There are few of the English Third Pointed or Perpendicular type. Melrose, perhaps, bears the nearest approach to it, while in a less degree are other examples at Stirling, Linlithgow, and Corstorphine. At Melrose the south transept window, with its gable, shows a successful, and almost unique, example of the combination of Perpendicular, Flamboyant, and Decorated types.

OF CARVED WOODWORK

we have, unfortunately, very little left us of the period. An easy prey to fire, it is scarcely to be expected that much would escape in the track of the wars of the fourteenth century. At Dunblane, however, we still possess a portion of the stalls, which is traced to be of late fifteenth century or early sixteenth century work, and at Aberdeen and Tain respectively we have very characteristic pieces in a group of stalls and screen, and in a pulpit. Such then is a sketch of the outstanding distinctive features of Scotland's Church Architecture after the close of the thirteenth century—a sketch which it has been thought well should comprise the gradually diminishing few churches erected in the early part of the sixteenth century, prior to the Reformation. The last of these—a Collegiate church—was founded in 1545, and was scarcely finished when the Reformation became a completed act to turn the tide of church building into new channels. I trust I may be permitted to anticipate that you will, as I have done, recognise that in all works, Scotland has sustained

THE RACIAL CHARACTERISTIC OF STURDY INDEPENDENCE,

though expressed sometimes at the expense of elegance. The English work of the same type, busy with many small members in mouldings, attenuated arcades supported on elegant but rather reduced shafts, does not seem to have appealed to the Scottish mind. The Scotch seem to have preferred the strength and solidity of their earlier works, continuing the cylindrical and polygonal shafts in arcades, even to a very late period; and in nearly every case they exhibit a mastery of the Art of masonry construction quite commendable. It must be recognised that Scotland laboured under very special disadvantages from its prolonged internal disturbances. These severed her continuity of Art study and culture, yet her work bears the impress of a vigorous effort having been made to regain her place in the Art of Church Architecture. I do further anticipate that her works may be judged as exhibiting an absence of the refinement shown in the works of her southern neighbours, but it must be remembered that in England and France political conditions were more favourable to an unbroken development of Art. Where work of any magnitude had to be done in Scotland, however, the results (such as at Melrose) show that the intelligence and ability to adapt appropriately and skilfully available architectural details, and at the same time to give the impress of her own mind upon them, had not entirely died out.—Mr. J. M. Brydon, proposing a vote of thanks to the lecturer, described the paper as one of the most interesting read in the room, either before the Institute or the Association, for many years. He reminded the company that Mr. Blanc came as a representative of the Royal Scotch Academy, and that he was a past president of the Edinburgh Architectural Society, which was the most influential body out of London, because it not only embraced architects, but also painters and sculptors. Proceeding to comment upon the subject of the evening, Mr. Brydon said it would at once strike them that the characteristic feature of the work of Scotland was

ESSENTIALLY NATIONAL,

with all that pure, sturdy independence of which the lecturer had spoken, and which was said to be characteristic of the owners of the

favoured country north of the Tweed. He was struck with the French leaning that was everywhere apparent throughout the work in Scotland, and especially in the later work. That was easily accounted for, because after the epitome of the earlier work of Scotland was laid, and, in fact, of England, so to speak, there came the break which happened at the end of the thirteenth century, which Mr. Blanc, with his kindly disposition, said they would not remember, for it was a war with their southern neighbours, and there was nothing but strife and bloodshed for a century afterwards. That accounted for the fact that nothing in the way of Architecture of consequence was going on in the northern part of the island while it was still proceeding in the south. When the work was renewed, instead of following the examples of England and the southern countries, the Scotch struck out in a line of their own, and developed what is now known as Scottish Ecclesiastical Architecture of the later Gothic. It must strike them that such work as in the church at Stirling, with its magnificent east end, and the beautiful crown towers of Aberdeen and Edinburgh, were peculiarly Scotch, and could never have been done anywhere else but in Scotland. He was especially struck with the front of Aberdeen Cathedral, with the peculiar French tracery and the pear shape of the *fleur-de-lis* forms. They would find almost a replica of that in the Church of St. Gervais in Paris. With regard to the

BEAUTIFUL EXAMPLES OF GROINING,

there were one or two not mentioned by the lecturer, and notably that of the north porch of the Abbey at Dunfermline, which, he thought, was of the fourteenth century. It was one of the richest pieces of groining to be found anywhere, either in England or Scotland.—Mr. R. Phené Spiers, in seconding, said there was a distinct character in all Scotch Architecture, which showed that it was not copied at all from English or French work. It was ten years ago since he paid his only visit, he was sorry to say, to Scotland, but he made a great number of drawings of abbeys and churches, and he was particularly struck with the simplicity of them. In the Church of Stirling he noticed the clever way in which the upper portion of the tower was built, and also the extremely picturesque effect of the west side—it was most charming. If drawn in line on paper it looked nothing at all, but in the actual building they got the greatest possible charm. It was, in fact, a proper treatment of a simple church tower. There was great beauty, too, in the decorative carving of the churches, something entirely different from either that in France or England. In Roslin Chapel he thought there was some foreign influence, more foreign than the French spoken of, in fact, something Portuguese or Spanish. That was a point upon which he was still not satisfied, but he thought it must have been so after seeing the view exhibited. There must have been some new influence, or the architect's originality was of extraordinary power for him to have drawn something from his mind entirely different from the others. Then the setting back of the windows of the churches struck him as giving great strength to the sides and central mullions.—Mr. Beresford Pite said down south they were accustomed to overlook a great many of the benefits that arose from a visit to north of the Tweed. They must remember that Mr. Norman Shaw came out from that office, and those who had had the pleasure of hearing Mr. Ruskin in London knew that his speech was marked with the northern accent. It did appear that Scotch Architecture, in the Gothic period, had troublesome times. He supposed the country was only partly civilised. There was

A WANT OF COHERENCE

in the mediæval design which they did not find in England. They had heard a great deal about buttresses and windows and detail, but of no marked coherence in design; in fact, it was absent. The rugged quaintness which, by the way, survived in the corbelling and so on, was interesting. There were very few traces of solid æsthetic bases in the scheme, and if they took out the tracery in the Scotch churches they

* A paper read before the Architectural Association on Friday, March 11.

were a little doubtful whether they were Norman or Spanish. He could not help wondering where the Scotch crown tower came from. It was a beautiful idea; the delicate composition seemed altogether foreign to the period in which the buildings were erected.—Mr. Thomas Arnold said, with regard to the lecturer's remark that building practically ceased during the times of the wars of independence; it was scarcely so, because Elgin Cathedral was built during that time, and Melrose and many others were built during the time of Bruce and his successors.—The Chairman (Mr. Pratt) said he had seen many of the buildings alluded to, and of them Roslin Chapel was a puzzle to him, for its extraordinary detail, and especially the carving.—Mr. Hippolyte Blanc, responding, said he was aware there were many points he had not mentioned, but when he told them he had about five hundred photographs, they would see the difficulty in weeding them out. There were

SO MANY POINTS OF INTEREST

in Scotch Ecclesiastical Architecture that it would have been better, perhaps, if he had limited himself to the work even of the fourteenth century only. It was true that Robert Bruce gave large sums for building Melrose, but that was not to apply until after his death, and then there was some trouble, and it was difficult to exactly state what was built during the fourteenth century. Of what remained of that period rather tended to show that abbeys and cathedrals were slightly altered and added to, but in no way of great importance until after the middle of the fourteenth century. As to the influence of Scotland upon England and England upon Scotland, he would invite the holiday Association to go to Scotland and allow him to lead them over many of the interesting works, where they would find not altogether that marvellous in expression of barbarity, but rather, in most instances, even in the crudest examples, a touch of that refinement and beauty which was well known to belong to the Scotch nature. In Melrose they had beautiful examples of artistic imagination. He would suggest that one season the Association should make arrangements to enable it to visit the interesting work in a confined area in Scotland, where they would be given a very hearty welcome. They might exchange visits, by the Scotch Association coming south.

SIGNOR LUIGI CAPUCCI, an Italian architect, who has just returned after a long captivity in Abyssinia, sketches "the real Menelik" in somewhat new colours. According to Signor Capucci, the Negus is little better than a savage, and neither he or his subjects have the smallest desire for civilisation. In their palace, except a sewing-machine and a bare four-post bed, there is not a scrap of European furniture, not even a chair or a table. The works of Art presented by foreign Governments are piled up in a shed.

An interesting point has been settled by some excavations which have been carried on in connection with Carfax Tower at Oxford. The exact date of this tower has long been a subject of dispute. Some Anglo-Saxon coins belonging to the reigns of Edward the Elder and Athelstan have been discovered, and it is considered on the evidence of these that the date of the tower cannot be much later. The restorations of the tower are proceeding apace under the direction of Mr. Jackson, R.A.

The Irish antiquities which Mr. Redmond and the Irish Nationalists are asking the Government to induce the authorities of the British Museum to transfer from Bloomsbury to the National Museum at Dublin, consist, it is stated, of a number of gold ornaments of late Celtic period, among them a model of a boat and oars. They were discovered in the north-west of Ireland, and as treasure-trove found their way eventually and in the ordinary course to the Department of Mediæval Antiquities and Ethnography in the British Museum. By the Act of Parliament constituting the Museum the trustees have no power to comply with the request of the Irish members.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
March 23rd, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slatz; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

MR. KIRBY, of Liverpool, assessor for the new Fylde Workhouse plans, has made his award as follows:—1. £150, Messrs. Crickmay and Sons, Westminster Chambers, London; 2. £100, Haywood and Harrison, Accrington and Lytham; 3. £50, Mr. Morton, South Shields. About twenty architects competed. The assessor was recommended by the Local Government Board. The estimated cost of the new house is £36,000, exclusive of land, and it is to be built at Wesham, Kirkham, on a site purchased from Lord Derby.

THE assessor for the new technical school at Barrow-in-Furness, Mr. H. Lord, of Manchester, has selected the design marked "Hæmatite," as the best in the competition. The authors are Messrs. Woodhouse and Willoughby, of Manchester, who, therefore, secure the first prize of £50. The design marked "Expect," and the work of Messrs. Wood and Hutchings, architects and surveyors, Tunstall and Burslem, has been selected for the second prize of £20. Twenty-five sets of drawings were submitted. The building is estimated to cost about £9000.

WHILE at one part of Paris the Exhibition contractors and constructors are busy, the demolishers are energetically engaged not very far away in effacing the last vestiges of the Cour des Comptes, and of the barracks near it. These works, undertaken by the Orleans Railway Company, for the purpose of transferring their terminus to the Quai d'Orsay, were, like those of the Exhibition, temporarily delayed by the bad weather. Now, however, that there are signs of spring, the preparations for the construction of the new railway station are proceeding with rapidity. It is expected that the ground will be thoroughly ready by June, and that then the erection of the terminus will be commenced. The enterprise is one of considerable magnitude. The Orleans line will be prolonged through a tunnel from the present station at the Botanical Gardens entrance as far as the Quai Saint-Bernard. There will be an open cutting to the Sully Bridge, and at this point the railway is again to disappear underground as far as the Quai d'Orsay.

THE Bristol Fine Arts Academy Exhibition promises to be one of the most successful and interesting ever promoted by the committee. The number of exhibits—439—is about the same as last year, but a marked improvement is noticeable in the quality of the works, many prominent artists being represented. There is a large landscape by Mr. F. J. Waugh, an American artist. This work and three others by the same artist have never been exhibited in England before. Mr. T. C. Gotch, of Newlyn, contributes a work which has gained many distinctions. Amongst other pictures of the Newlyn school, Mr. Walter Langley sends a

large water-colour picture, showing the exterior of a typical Cornish cottage. One of the best pictures in the exhibition is that sent by Mrs. Ernest Normand (Henrietta Rae) entitled "Zephyrus Wooing Flora," which was exhibited at the Royal Academy in 1890. Some interesting pictures are contributed by artists, members of the Academy, including one of the interior of St. Peter's, Rome, by Sir Wyke Bayliss, who is a vice-president of the Bristol Academy, and one of its professional members. Mr. J. W. North, A.R.A., also sends an important work. Amongst the other artists represented are Messrs. Edgar Bundy, John Finnie, Spenlove-Spenlove, Harold Speed, Alfred Parsons, A.R.A., C. E. Johnson, J. H. Henshall, R. W. S., Chetwood-Aiken, Solomon J. Solomon, A.R.A., John R. Reid, J. Noble Barlow, Melton Fisher, Arthur Wardle, W. H. Bartlett, and many others.

A CERTAIN section of our young painters may now be regarded as steady contributors to the French Exhibitions. In some cases work not seen to very great advantage at Burlington House gets a better chance in the Paris galleries a year later; in some the artists send their first direct from the London studios. In both the French Salons it is understood that there will this year be considerable changes. The old Society and the young will open on May 1st, and the divergence between the schools will be brought into sharp contrast by the hanging of both series of pictures in parallel galleries on the Champs de Mars, while the ground floor of the building—the Galerie des Machines—will be devoted to sculpture. Artists intending to contribute will take note that pictures and engravings must be sent in between the 24th and 26th of the month, sculpture from the 29th to the 31st.

THE loan collection of Art objects from the South Kensington Museum in the Birmingham Art Gallery has recently been changed, according to annual custom, for fresh specimens, especially selected for the city. The new collection, which is extremely interesting, includes a case of metal-work—Russian, Dutch, German, French, and Italian; a case of European porcelain, chiefly of the eighteenth century, including fine specimens of Sevres, Dresden, Danish, Dutch, Belgian, and Italian china; and a third case containing examples of various enamels, particularly some very fine Limoges enamels of the thirteenth, sixteenth, and seventeenth centuries; modern Russian work, candlesticks, boxes, and scent-cases; Battersea enamel of the eighteenth century; a very crudely-coloured little box of Bilston enamel; Spanish jewelled crosses, in gold and enamels, of the seventeenth and eighteenth centuries; and French and English enamelled watches of the eighteenth century. A fourth case is devoted to bookbinding and leather-work—Italian, French, German, Persian, and English—from the fifteenth to the eighteenth centuries. The collection also includes examples of German, Flemish, and Swiss stained glass of the sixteenth and seventeenth centuries, and examples of lace and embroidery of different countries and dates.

MESSRS. SOTHEY, WILKINSON, AND HODGE recently sold a small collection of engravings, framed and in the portfolio, comprising fancy subjects by masters of the English school, some printed in colours. The highest price of the day was paid for an open letter-proof of the well-known engraving by W. Ward, of "The Daughters of Sir Thomas Frankland," after the picture by Hoppner—£380 (Vokins). The rise in the value of this engraving is very noteworthy; until quite lately it realised a comparatively small amount when it occurred in the sale-room; about six years ago Lord Cheylesmore paid £200 for a very beautiful example, with full margins, and in the finest possible state, and since that time the few examples which have occurred in the sale-room have sold for very high amounts. The example sold had comparatively narrow margins, and a somewhat similar example sold for £200 as recently as November last. Another highly "fancy" price was paid for a proof with etched letters of Valentine Green's

engraving of "The Ladies Waldegrave," after Sir Joshua Reynolds's picture—£330 (Colnaghi and Co.) The sale also included the following:—"Summer" and "Winter," after F. Wheatley, by Bartolozzi, in colours—the pair, £129 (Sabin). The day's sale of 160 lots realised £1380 5s.

LECTURING ON "Indian Art" at the Walker Art Gallery, Liverpool, Mr. C. Purdon Clarke, director of the South Kensington Museum, said the nucleus of the present Indian collection at the South Kensington Museum was the old East India Company's museum. That was transferred by the Government of India to the charge of the Science and Art Department in 1880, when it was rearranged and greatly enriched. Two years' travel in India had led him to form two distinct impressions—first, that India was not a nationality; and, secondly, that it was impossible to localise any of the Art styles which all over the country could be found roughly grouped into two classes. Much in India belonged to the topsy-turvy order of things, and in illustration of this he threw upon the screen the façades of the two dwelling-houses which occupy the east and west walls of the new entrance to the Indian Museum. He went on to give numerous examples of early date, illustrating the strong influence of the Greek invasion on the Architecture and ornamentation of the Hindoos and Moguls in after ages. Many exceedingly interesting examples of woodwork, mural decoration, and ornaments were shown, and from this the lecturer proceeded to deal with the influence of Italian artists in India in the seventeenth century, giving as a case in point the Hall of Audience at Delhi, this being unmistakably Italian.

THE Lockwood Exhibition at the St. James's Gallery consists of some 500 sketches. The great majority relate to incidents in the Courts, but those who know more of the House of Commons than of the Royal Palace of Justice will find plenty to amuse them. Perhaps the caricatures which attract most attention are those which Sir Frank Lockwood drew while appearing before the Parnell Commission.

It has been found impossible as yet to complete the building of the Collegiate Church of St. George at Jerusalem. The season has been unusually stormy, and many cases of marble and other artistic work for the fittings of the church have only just arrived, while others which passed Jaffa on December 8th have not reached the Holy City, and some of them have not even been heard of. The church forms part of a group of buildings of a very interesting character, which already contains a house for the Bishop, and will be completed by the erection of a clergy house. As these works are in rapid progress the delay will be advantageous in the end, as it will secure the opening of a much more dignified set of buildings than would otherwise have been the case. The site is an admirable one, and the buildings solid and architecturally impressive, but of much less pretentious and aggressive character than many of those which encumber this part of Jerusalem.

Good prices were obtained for water-colour drawings at Christie's the other day, 450 guineas being bid for "Peace and War," by David Cox; 350 guineas for "The Bridge of Sighs," by S. Prout; 310 guineas for a village scene with peasants, horses, pigs, and ducks, by Birket Foster; 440 guineas for a view of a castle and harvest fields, by P. de Wint; and 290 guineas and 205 guineas respectively for a Scotch moor with sportsmen, and Loch Lomond, by Copley Fielding. Among the most important of the pictures were "Autumn on the Thames," by Vicat Cole, R.A., 450 guineas; "When Eventide Approaches," by H. W. B. Davis, R.A., 280 guineas; "Canterbury Meadows," by T. S. Cooper, R.A., 280 guineas; and "A Summer Evening," by J. Linnell, sen., 290 guineas. About £8500 was realised.

THE plans that have been recently made public for widening Jewin Street, in consequence of the recent disastrous fire, and for

connecting it with West Smithfield by means of a road through the centre of the parish of St. Bartholomew the Great, will have as a consequence, if carried out, the demolition of the beautiful Early English gateway which leads from the old Priory into Smithfield. As this could be avoided without much difficulty, it is to be hoped that strenuous efforts will be made to preserve such an extremely interesting relic of the 13th century.

It is understood that no memorial to the late Prince Henry will be placed either in St. George's Chapel or in the Queen's private chapel within Windsor Castle. A life-size bust of the Prince in white marble has been produced by the Countess Gleichen, and it now rests upon a pedestal in the Grand Corridor. Its position is midway between the central elbow and the inner end of the corridor, so that the ordinary visitor might not see it all. The likeness is distinctly good, and the full beard and hair have been treated with a naturalness that is not always achieved by more practised sculptors. The shoulders are perhaps a little fuller than exact portraiture would sanction; but the work is quite adequate, and a replica of it, prepared under the supervision of the Countess Gleichen, from her own studio, is said to be designed for one of the vacant niches in the ambulatory of the Royal Mausoleum at Frogmore.

THE large equestrian picture of the Prince of Wales and the Duke of Connaught, which was recently completed by M. Edouard Dédalle, has now been placed permanently in a mural panel created for it by the removal of three mirrors from the west wall of the State Dining-Room in Windsor Castle. The framework is formed of gilt mouldings in unison with the Chippendale carvings upon the doors, and there is an effective arched Tudoresque moulding across the upper line of the painting, which imparts to it a decorative completeness, the lower line being supported in effect by the immense sideboard. Alone in the suite of rooms comprising the East Terrace, the dining-room hitherto possessed no pictorial relief upon its walls, and the result of the change is distinctly pleasing.

WRITING on the subject of the proposed Westminster Improvement, Mr. Norman Shaw, R.A., says: "With reference to an article which Mr. Warren has written in the Fortnightly Review, I will not take up space excepting so far as to point out two of the most important points in which he is under a misapprehension. The proposed embankment is not to be the width he says; on the contrary, it will be as wide as that portion of the Embankment with which it will ultimately be connected—a width, in my opinion, amply sufficient to give dignity to the scheme. Secondly, the picturesque surroundings of the Abbey in which Great College, Cowley, and Barton streets lie will not be touched by the proposed alterations. Mr. Warren's errors have probably arisen from the fact that he has too hastily formed his opinion upon the rough scheme as deposited with the Bill and not upon the final arrangement of it."

LADY HENRY SOMERSET has sold to the Corporation of Reigate, for £300, an acre and a half of land in the centre of the town as a site for municipal buildings, on condition that if such buildings are not erected her ladyship shall have the option of re-acquiring the land at valuation. There is a justification for this arrangement in the fact that, although the members of the Town Council are agreed that their new headquarters are urgently required, they are hopelessly at variance on the question of site. The municipal borough contains the two towns of Reigate and Redhill, and the latter, being the more populous, is stoutly pressing its claim to be the seat of local government.

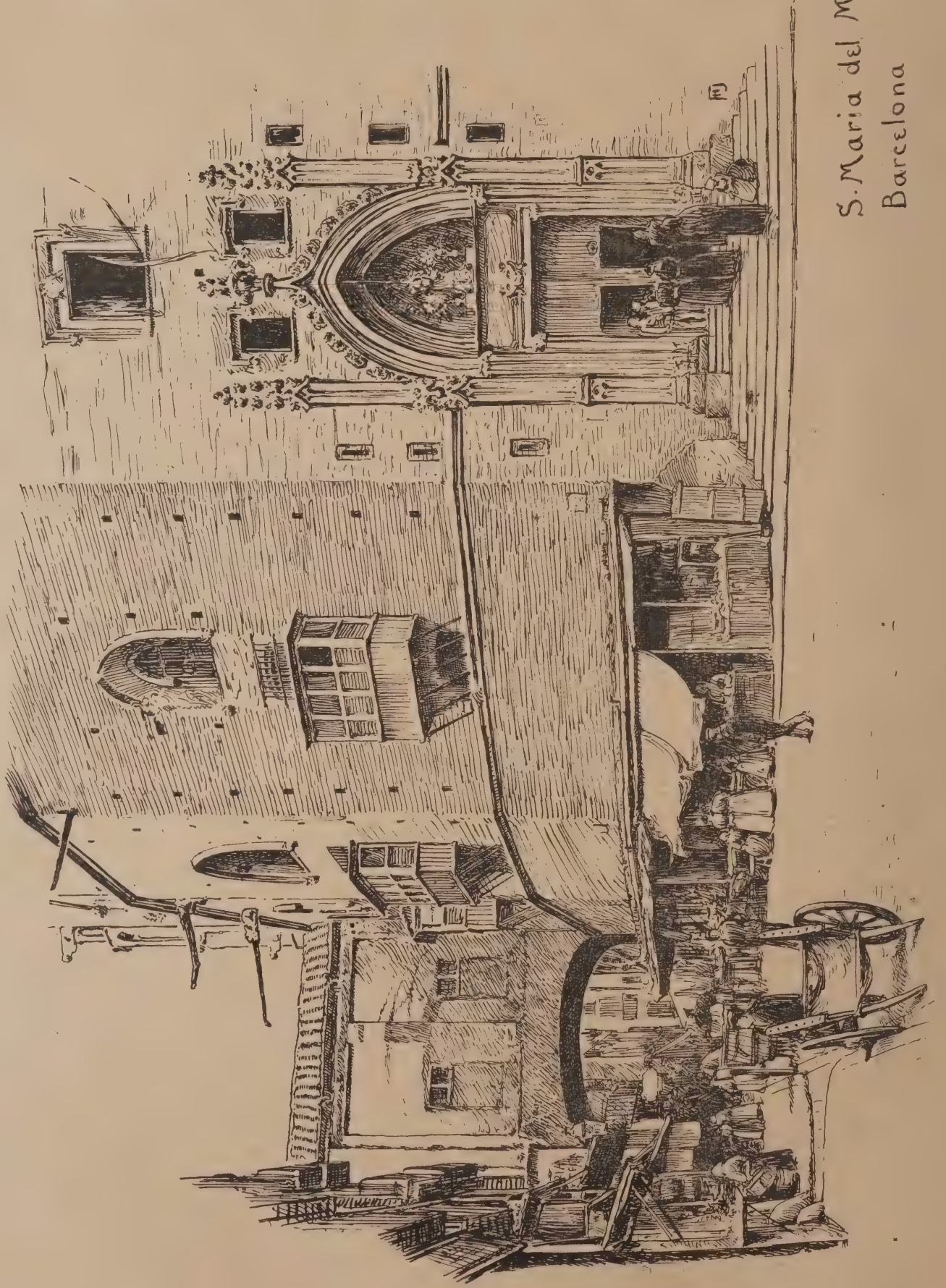
THE following is the text of the memorial to the London County Council from persons residing in the area of the proposed Westminster Improvement Scheme:—"We, the

undersigned, residing or carrying on business within the area proposed to be compulsorily acquired by 'the Victoria Embankment Extension and St. John's (Westminster) Improvement Bill,' appeal to you, without distinction of party, to instruct solicitors and employ counsel to oppose the said Bill at every stage, and we make this appeal on the following grounds:—1. That, while the necessity of a real public improvement might warrant the eviction from their homes and places of business of so large a number of private citizens, it is manifestly unjust to grant such power of wholesale disturbance, which would mean ruin to many tradesmen depending upon local custom, to a private company seeking its own profit. 2. That the proposals of this private company, or syndicate, do not in any real sense provide public improvements, because—(a) no real extension of the Victoria Embankment is proposed, as the provisional plan clearly shows, the intention of the syndicate being to acquire the valuable site between the Victoria Tower Gardens and Lambeth Bridge for the erection of residences for the rich; (b) the proposed arrangement of streets is not based upon the necessities of traffic, but purely upon the creation of remunerative building sites, and the proposed junctions with Horseferry Road would be awkward and dangerous; (c) it is proposed to block up the natural avenue of approach to the parish church of St. John the Evangelist, to the great inconvenience of parishioners and detriment of architectural effect. 3. It is not expedient to intrust sites of historic interest and national importance, in close contiguity to the greatest monuments of the nation, to a private company which is bound to place the interests of its shareholders before those of the general public."

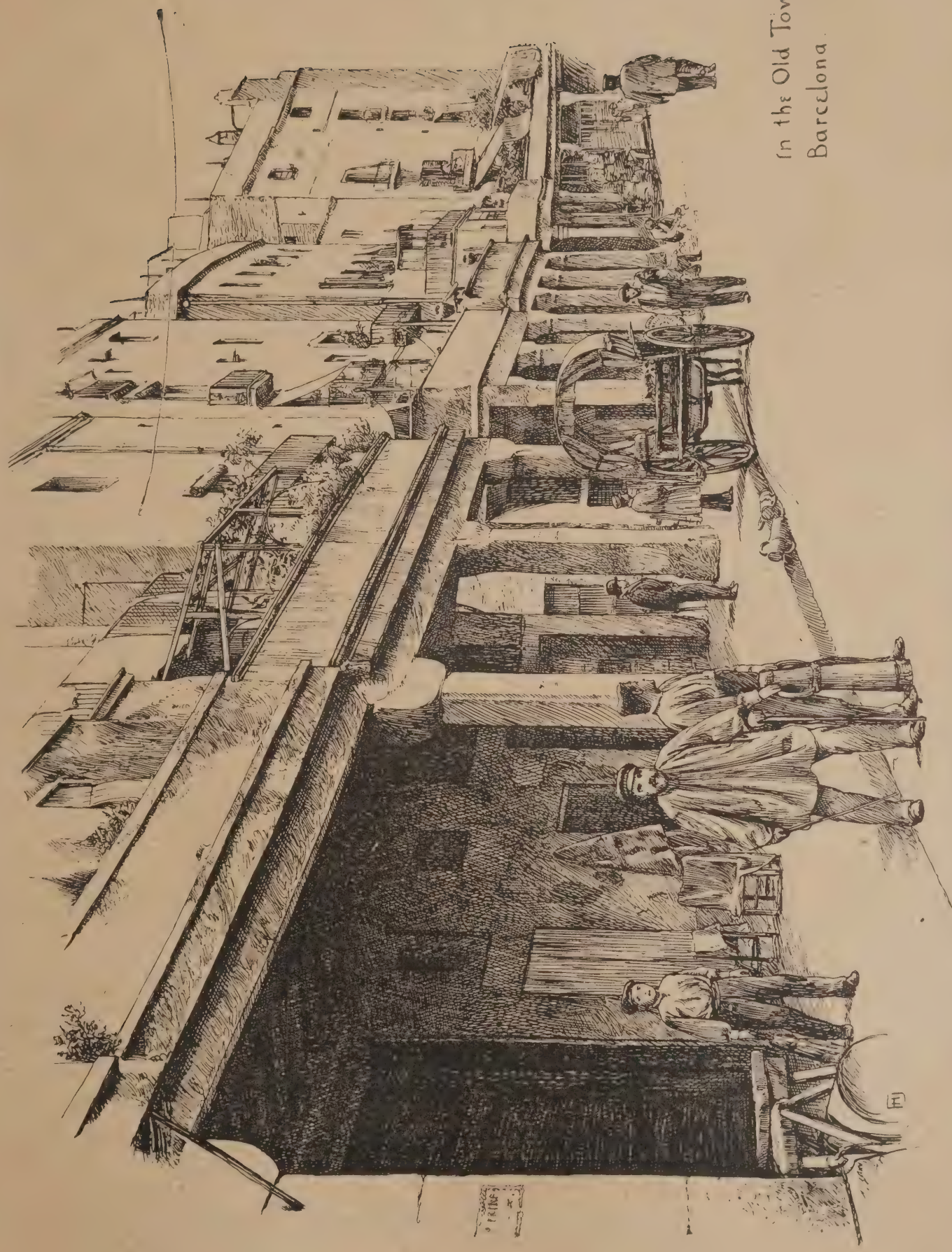
THE scene under Waterloo recently was quite uncanny in its gloom and obscurity and multifarious activity. There were three contractors concerned—the builders of the line, and the electric and hydraulic engineers—and between them they appeared to have quite a host of workmen. The extensive galleries that have lain so many years dark and silent and deserted will soon become as busy and bustling as the huge station above, the platforms of which lie about 35ft. above the new line; and as this new line runs right across from one side of the station to the other, connection between each of the upper platforms with those below has been an easy matter.

THE whole of the great station at Waterloo rests upon a series of arches running lengthwise across the line. These have been utilised for the station of the new electric railway which enters them at the end nearest the river, runs through the whole length of them, and trails off into an open space on the south side of Waterloo, where there are siding lines and shunting points. The electric trains will take four or five minutes to run from one terminal station to the other, and at their lowest dip under the middle of the river they will be at 60ft. or so below Trinity high-water mark. The rush down on one side will go far to carry the train up the incline on the other, so that no great expenditure of electric power will be necessary, but there is an extensive installation of generating machinery just beside the line at its southern end. During the busiest periods of the day trains will run as rapidly in succession as they can be cleared and re-started, but there is a separate tunnel each way, and only one train will be in a tunnel at a time, so that a collision cannot occur.

It has been resolved that the historical bridge of Trajan, across the Danube at Turn Severin and Kladova, is to be rebuilt. Roumania undertakes to build the bridge and Serbia the railway from Kladova to Nisch. The bridge will be built on the identical spot where the old one stood. The Roumanian engineers have ascertained that the old pillars still existing will bear the new structure. In the middle of the bridge a statue of the Emperor Trajan will be erected.



S. Maria del Mar
Barcelona



In the Old Town
Barcelona.

PICTURESQUE CITIES AND MONASTERIES OF THE NORTH OF SPAIN. FROM A DRAWING BY F. HAMILTON JACKSON.

SCAFFOLDING is being erected round the eastern end of Kensington Palace, and the estimates contain a sum of £15,000 for further restoring the staterooms and banqueting-house. The interior is in such a forlorn and dismantled condition that this sum will clearly be insufficient to put it in a proper state of repair. And when this is done it will require to be furnished; and if furnished and decorated in the mode of 1900, it will have no connection with any of its antecedents, and can be of no interest whatever except to those who wish to pay a pilgrimage to the Queen's birthplace. It would really have been better for it to have been turned into the National Portrait Gallery, or, better still, into the Gallery of British Art, as was proposed.

THE death occurred recently, at his residence, 49, Inverness Terrace, of Mr. Deputy Edmeson, at the age of 74 years. The deceased was one of the oldest practising architects in the City. He was one of the arbitrators appointed by the Board of Trade in architectural cases, and he also held a similar appointment in connection with the City of London Court. He was a Fellow of the Royal Institute of British Architects and the Institute of Surveyors, and a member of the Association of Surveyors. The deceased was also the late chairman of the Society for the Encouragement of Fine Arts.

THE Inner Temple (King's Bench Walk) Bill came before a Select Committee of the House of Lords last week. Mr. Balfour Browne, in the course of his opening statement for the promoters, said that the Thames Embankment Act, 1862, provided that no buildings other than porters' or gardeners' lodges should be erected on any part of the lands to be acquired or reclaimed lying between the River Thames and the gardens of the Inner and Middle Temples. At the present time, however, great need had arisen for the provision of further accommodation within the Temple precincts, and that could most easily and conveniently be provided by the erection of buildings in continuation of King's Bench Walk in a southerly direction towards the river. To do this, however, a portion of the reclaimed lands would have to be built upon.—Mr. Pope, on behalf of the County Council, urged that private and not public convenience would be served by the Bill. The land in question had been reclaimed at the cost of the public, and the Inner Temple had in no way contributed to the cost.—Mr. Littler and Mr. Clode, representing the District Railway, having addressed the Committee against the Bill, the Committee, after a brief consultation, found that the preamble of the Bill was not proved.

At the Devon Winter Assizes held recently, before Mr. Justice Bingham, the case of *Allen v. May* was heard. Plaintiff, an architect of Kingswear, claimed commission for the preparation of plans.—The defence was that plaintiff exceeded his instructions, and there was a counter-claim for £50.—In cross-examination, the defendant said he had never had anything to do with building matters before. He came to an agreement to pay Mr. Allen 2½ per cent. for plans for a house costing £1500, and 2½ per cent. for supervising the erection. The plans were discussed at each interview to get them reduced. Defendant denied that he was continually asking for things which Allen said would increase the cost.—The counter-claim having been withdrawn, Mr. Foote, who represented defendant, said definite instructions were given that the plans should be for a house to cost £1500. The only question was whether the increase was due to alterations suggested by defendant. Mr. Allen took a lot of trouble over the plans, but he asked for the work, and was told the terms upon which he could have it.—Mr. Bullen, replying for the plaintiff, pointed out Mr. Allen wrote defendant definitely that all he wanted could not be done for the sum stated, but if he wished to have a design for £1500 he could have it, but he would have to forego certain luxuries.—The jury found for plaintiff, and his Lordship awarded him £75.

THE tomb of Thothmes III. has just been discovered at Thebes, in the Valley of the Kings, by M. Loret, the Director-General of the Museum. Two staircases, a corridor, and seven rooms—of which two are ornamented with paintings in an admirable state of preservation—have been unearthed; and a sarcophagus, unique of its kind and almost intact, was discovered in one of them.

A SPIRAL railway tower is being planned as one of the features of the forthcoming Pan-American Exhibition at Niagara Falls. The building will be erected on Cayuga Island, and the general design is as follows:—A steel skeleton tower, about 500ft. high, and 80ft. diameter at the base, and 50ft. diameter 400ft. above the base. Around the erection, supported by strong brackets, a spiral railway will be constructed, which will pass ten times round the tower in reaching the 400ft. platform. The motive power will be electricity, and various safety appliances will be used in connection with the track. The spiral railway will be double, providing for independent up and down tracks, 20ft. apart. It is estimated that this tower will only cost some two-thirds the amount expended on the famous Ferris wheel at the Chicago World's Fair.

MR. H. E. Moss intends presenting London and Londoners with a grand hippodrome. The proposed site for the building is in Cranbourne Street, Leicester Square, within a stone's throw of two other great places of amusement. The structure itself will be designed on novel lines, embodying all the latest English and Continental improvements, and will include, apart from the theatre, a restaurant, a fully-licensed hotel, shops, and residential chambers. It is believed that the building will eclipse in size any other place of entertainment in the country. It will be known as "The Hippodrome."

It is worth while noting that William Edwards, the bridge architect of Glamorgan, who first spanned the Taff at Pontypridd in 1747, derived a great deal of his masonic principles by the unwearied study of Caerphilly Castle. Mr. Edwards' manner of dressing the stones and hewing them was exactly similar to that of the Norman builders, and he put them together in a style of closeness, neatness, and finish such as could not have been surpassed by the noted, though unknown, builders of Caerphilly, Neath Abbey, and Morlais Castle.

MR. G. F. BODLEY, A.R.A., has reported to the Dean and Chapter of Peterborough on his recent inspection of the west front and other parts of the Cathedral which are showing signs of weakness. Happily the great arch on the south of the west front is not in so bad a state as the northern one, and he hopes they may be able to keep it up. Mr. Bodley thinks that by carefully grouting with liquid grout from the top of the arch, and other means, much may be done to strengthen it, but it has yet to be seen how far this would be sufficient. The whole of the front has gone considerably out of the vertical, and is a good deal shaken, and the gable is so weak that he fears it must be re-set. The walling behind the ashlar face is in so bad a state that he thinks no method of strengthening the wall is here practically possible, though he laments the necessity of its being taken down. The stone is so perished and the masonry is so shaken that it would not be feasible to back the existing wall of the gable and get sufficient strength for it. This work should be taken in hand at once. Mr. Bodley had also drawn attention to urgent repairs needed in the walls of the eastern chapel. The estimated cost of the whole of the work is £8659, and that which it is urgent to undertake at once would cost £2739. At a meeting of the Restoration Committee it was decided to proceed with the more urgent work.

At a recent sitting of Chester County Court his Honour Sir Horatio Lloyd was engaged for several hours in hearing an action brought by Daniel J. Kennedy, surveyor and architect,

Liverpool, to recover £31 10s. from John Bird, Pantasaph, for professional services and expenses incurred. Plaintiff's case was that while he was engaged doing some work in the neighbourhood of Holywell Convent for Mr. Kirby, architect, Liverpool, he was introduced to defendant, and subsequently he prepared plans for the erection of nine cottages and a shop at Holywell for him. The plans were passed by the Urban District Council, but at the last moment defendant was not able to raise the mortgage money, and accordingly was not able to carry the work out, so plaintiff did not prepare the specifications. Finally plaintiff pressed for the payment of his bill, and defendant offered him three guineas. Plaintiff estimated that the work could be done for £1100, and he charged commission at the rate of 5 per cent., but as the specifications were not prepared he reduced that by half.—For the defendant it was contended that this was an arrangement based on friendship. Plaintiff went down and stayed occasionally with defendant, who did not charge him anything, and Mr. Bird being anxious to help plaintiff in his business, introduced him to Mr. Montgomery, a brewer. There was no understanding as to payment for the plans, and defendant did not adopt them because he was informed by a builder and another gentleman that if the buildings were erected according to them they would cost something like £2000 instead of £1000. It was further claimed that plaintiff was not entitled to commission in a speculative transaction of this kind.—His Honour, in giving judgment, said he could quite understand that owing to the hilly nature of the site of the proposed buildings plaintiff's work was not easy. On the other hand, he was very much impressed with the idea that the parties met in a friendly kind of way, and that there was a good deal of mutual obligation. Plaintiff was desirous of getting work from Mr. Montgomery, and defendant helped him in the matter. With regard to the contention that the plans could not be carried out at the proposed cost, he pointed out that it was often necessary to ask architects to cut down their plans. Under all the circumstances, he should give plaintiff a verdict for ten guineas, with costs on that amount.

In the Queen's Bench Division recently, before Mr. Justice Wright, an action was brought by Mr. George Dennis Martin and Mr. Edward Keynes Purchase, architects and surveyors, formerly carrying on business in partnership, against Mr. William John Rafferty, to recover £700 under agreement dated March 11, 1895. Defendant denied liability. It appeared that in March, 1895, the defendant was the owner in fee simple of some land at Bayswater which he was desirous of letting on a building lease at a ground-rent or selling. By an agreement dated March 11 the defendant agreed to pay the plaintiffs a certain commission if they let the land on a building lease at a ground-rent. There was also a clause in the agreement to the effect that if the defendant should let the land to a tenant not introduced by the plaintiffs at a ground-rent not exceeding £600 a year, he would pay them £350 in full settlement; and that if the ground-rent exceeded that sum, the plaintiffs should receive one-half the excess, calculated at fourteen years' purchase. Plaintiffs' case was that they used their best efforts to let the land, and that while they were in negotiation with certain persons who were likely to take the site on a building lease, the defendant let the land to a Mr. Schofield, who was not introduced by them, at a ground-rent of £675 per annum. Therefore they said they were entitled to recover £700.—Defendant denied that plaintiffs used their best endeavours to let the land, and contended that under the agreement he was relieved from liability, inasmuch as he had to abandon the letting of the land, and to commence building thereon.—Mr. Justice Wright said in his opinion the defendant never did abandon the intention of letting the site, though he took steps to begin building operations in order to save the County Council license. There would be judgment for the plaintiffs for the amount claimed, with costs.

Surveying & Sanitary SUPPLEMENT.

MARCH 23RD, 1898.

Reservoir Embankments.*

BY WILLIAM FOX, M.INST.C.E.

DURING his professional career the author has had frequent opportunities of studying the construction of reservoir embankments, having carried out several works of this description, in some of which temporary failure has been experienced, causing much anxiety and trouble, although the remedies which were applied were in all cases ultimately successful. Some of these instances will be referred to later on. The author will first make some general remarks on the subject, and will then go on to describe some instances where difficulties have arisen, and the means adopted to overcome them.

In treating the subject, the author proposes to confine himself to those embankments which are constructed across natural valleys, thereby forming storage reservoirs of greater or less magnitude, and such as are recognised as the most economical mode of storing water for town supplies. The general remarks the author proposes to divide under the following heads:—

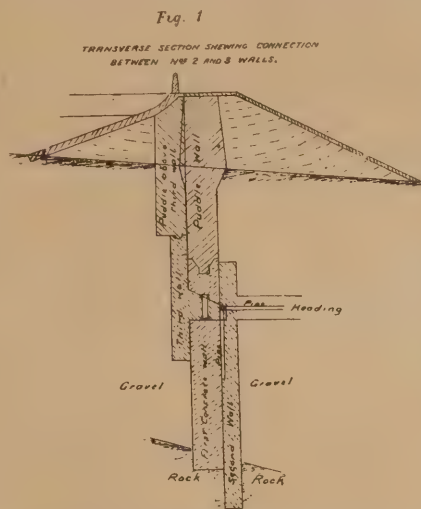
(A) Depth and form for the foundation for the puddle trench, and material used for refilling the same.

(B) Form of embankment, material used, and mode of construction.

(A) DEPTH AND FORM OF THE FOUNDATION FOR THE PUDDLE TRENCH.

Even when a suitable site, from a geological point of view, has been obtained, failure may occur through the foundations for the puddle wall not being taken sufficiently deep, not only in the bottom of the valley, but also into the slopes on either side. The author knows of no theoretical rule whereby, having regard to the hydrostatic pressure to which the work

is to be subject, the proper depth into the solid ground can be determined, everything depending upon the closeness or watertightness of the material in which the excavation is made. The author knows of one instance, the material for the foundation being boulder clay, where the excavation was only taken five or six feet below the surface of the ground; and, although a certain amount of moisture is visible beyond the outer slope of the em-



FORFAR WATERWORKS. DEN OF OGIL RESERVOIR.

bankment, the reservoir has been constructed for a number of years, and is to all appearances satisfactory. But such a shallow depth of excavation is not to be recommended, and especially in boulder clay, where beds of gravel may be met with, and where the only sure guarantee for safety is to take the excavation to a very much greater depth.

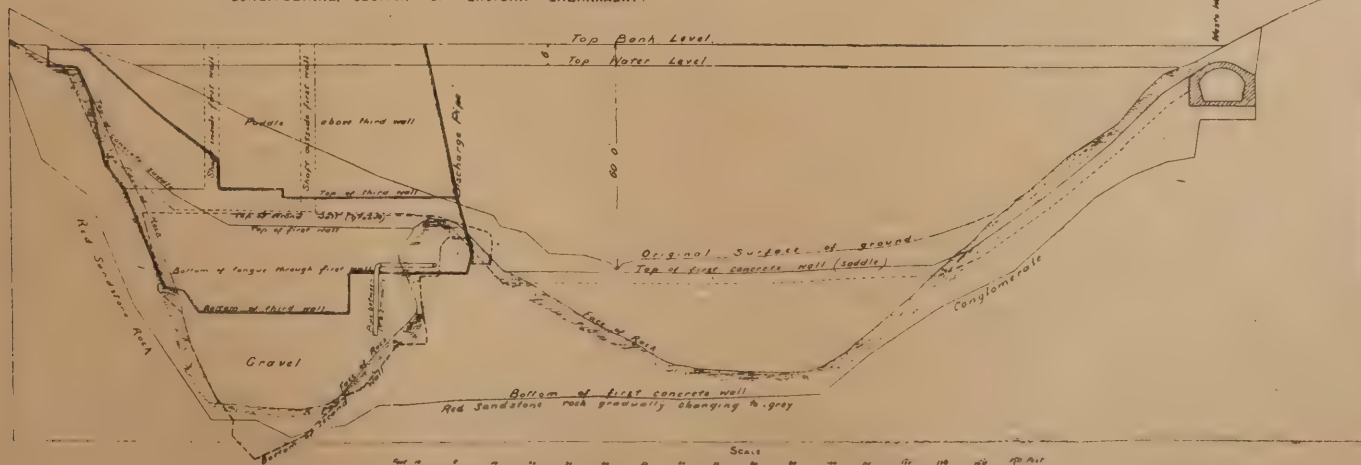
An absolutely impermeable foundation is

probably never obtained; springs, more or less even in clay, will be found, and only experience can determine when these are in such a position, or of such insignificance, as to be considered harmless. It has been the author's practice, if water appears in the bottom in quantities exceeding a mere weep, to put in a thick layer of concrete, on which the puddle rests; this has the effect of preventing running water coming in contact with the clay. He has also found it advisable to lead springs away by means of vertical pipes placed on one side of the trench, so as to enable the concrete to set without loss of cement. These pipes have sometimes been brought up to the level of the surface of the ground, and if the water rises in them, continued to the outer slope of the embankment; and in other cases, when it has been found that the water ceases to overflow, they have been run with cement grout and plugged.

The width of the trench is a question on which a great variety of opinion exists. The author considers that if it is to be refilled with good clay puddle, from 8ft. to 10ft. is sufficient for any depth up to 80ft. or 100ft. below top water level, and for comparatively low pressures of 20ft. to 25ft., 6ft. will be enough—of course, provided the clay is of good quality. Where the trench is to be refilled with concrete, a width of 8ft. will suffice to avoid any possible risk of failure.

In several cases where trenches of great depth have been constructed and the water pressure to be encountered was very great, it has been found most expedient to fill the trench, not with clay puddle at all, but with good hydraulic cement. This material, when once it has set and become hard, is not acted upon by running water, and if properly made and of sufficient thickness, is perfectly watertight. As a matter of cost, much will depend upon the facility for procuring suitable material and the price of hydraulic lime or cement; but although a less thickness is required, and a saving effected, not only in the material of the filling, but also in the

FORFAR WATERWORKS. DEN OF OGIL RESERVOIR. LONGITUDINAL SECTION OF EASTERN EMBANKMENT.



* A paper entitled "Reservoir Embankments, with suggestions for avoiding and remedying Failures," read before the Society of Engineers on March 7th, 1898.

excavation of the trench, it usually turns out more expensive than puddle.

Although good, fresh burned blue lias lime, ground before slaking, makes excellent concrete, it is more usual now to substitute Portland cement. The greatest objection to hydraulic lime is its comparative slowness in setting, and the difficulty often experienced in getting lias lime uniform in its chemical components, and sufficiently finely ground; but on the other hand, if disturbed during the process, provided the lime is not washed out, the concrete will reset or grow, a property which Portland cement does not possess. If lime is used, the author usually makes it in the proportion of one of lime to four or five parts of broken stone and sand, measured by bulk. Portland cement concrete, for puddle trenches of the dimensions previously stated, the author makes in the proportion of one part of cement to five or six parts of broken stone or sand; or, if there is much water in the trench, it may be advisable to increase the proportion of cement to make up for the possibility of some being washed out.

(B) FORM OF EMBANKMENT, MATERIAL USED, AND MODE OF CONSTRUCTION.

The author believes that invariably in this country, although elsewhere the method is departed from, it is usual to render the embankment watertight by a wall or core of clay puddle brought up from the trench previously described. The designing of this part of the embankment is a subject of greater diversity of opinion than any other.

The author's experience has been to bring the puddle up to within a foot of top bank level, where it is 8ft. or 9ft. thick, and increase downwards with a batter of 1in. in the foot on each side, so as to be 18ft. or 19ft. thick at 6ft. below top bank level. An instance will be referred to later on where, having had to cut into and remove some of the puddle wall, it was found to be quite sufficient, the wall being entirely impervious to water even with a pressure of 50ft. or 60ft. although the clay obtainable for puddle was far from being of the best possible description.

The height between top bank level and top water level of course depends upon the depth that the water is calculated to run over the waste weir, and the estimated height of the wave which may be formed by the wind blowing down the reservoir, having regard to the length of reach and the position of the embankment with reference to prevailing winds; but, in the author's opinion, this height, even with small reservoirs, should never be less than 4ft. after the embankment has done settling, and with large reservoirs 6ft. to 8ft. may be desirable.

The width of the top of the embankment is not, in the author's opinion, so material as the width at top water level, which is governed by the distance between top water level and top bank level and the slopes to which the embankment is to be constructed. Assuming these slopes meet at top bank level at the centre line, the top water is 5ft. below top bank, and the slopes 2 to 1 on the inside and 3 to 1 on the outside, the width at top water level will be 25ft. This will leave ample protection to the puddle to prevent its cracking in dry weather, which, if not protected, may become a great source of danger.

It is convenient that the embankment should be at least 10ft. to 12ft. wide at the top, and this may be obtained either by making the slopes above top water level somewhat steeper, or instead of their joining at a point at top bank level to design them any convenient distance apart or by a combination of both arrangements.

In addition to this, the author has in two instances, where the reservoirs have been made in the lias clay, formed the lower part of the toe of each slope of dry rubble or burnt ballast, with very satisfactory results. The inner slope of the embankment is, of course, always protected from wash by dry rubble pitching, brick, or concrete.

The author has found that clay spread in layers about 8in. or 9in. thick, well watered, twice cut and trodden, gives a very satisfactory result, although it is necessary sometimes

to use tempered clay in the trenches, on account of the difficulty of cutting and treading the clay between the timber used for supporting their sides. The author believes that the mode above described is cheaper than tempering the clay beforehand, but it is not so expeditious, as the latter system permits of clay being dug and tempered at such times as are convenient, and when the weather may be unsuitable for other progress being carried on. The author requires those parts of the embankment nearest to the puddle to be made of the finest and most argillaceous material obtainable, and put in in 2ft. layers; the most stony material being retained for the outer parts of the slopes, which may be put in in 4ft. layers, the layers being concave towards the centre of the embankment.

It generally happens that in districts in this country where large storage reservoirs are being made, the rainfall gives sufficient water to consolidate the material as it is put in place, and, although it is desirable that the material should not be too dry, if it is watered artificially, it should be very carefully done, in order that the whole of the material gets an equal quantity of water.

In the construction of the embankment it is the author's practice to set the profiles of the slopes somewhat steeper than the slopes are eventually intended to be, and to finish the top somewhat higher, in order that, when settlement takes place, the embankment will assume the shape intended. The amount of this allowance must depend upon the height of the embankment, the time taken in its construction, and the character of the weather during construction.

The author will now proceed to describe a few instances within his experience where difficulties have occurred, and the courses which were taken to render the work satisfactory. He will also describe another instance where these difficulties were anticipated, and the methods adopted which successfully prevented failure.

DEN OF OGIL RESERVOIR OF THE FORFAR WATERWORKS.

The embankment of this reservoir is placed across a narrow glen or gorge, the length being 310ft. and the greatest height 60ft. The greatest depth of water is 50ft. Trial holes were sunk before the work was commenced, in order to arrive at some idea of the depth that it would be necessary to excavate for the foundation for the puddle trench. At the south end of the trench rock was met with at about 7ft. below the surface, and near the bottom of the valley, on the same side, and less than 100ft. off another trial hole disclosed rock at about 5ft. from the surface. It was concluded that between these points the rock would be found at no great depth, and the contract depth for the trench was fixed at this part at from 25ft. to 30ft. from the surface. On opening the ground, a totally different state of things was discovered, for between the two points a deep bed of gravel was found, and the excavation had to be taken down as much as 80ft. below the surface before the rock was met with. The sections (Figs. 1 and 2) show the contract depth of the trench, the actual depth excavated and the nature of the rock met with.

The arrangement for discharging the water from the reservoir is by a 24in. pipe laid in concrete, which was bedded on rock for almost the whole length, a short distance only at the outer and inner ends being upon hard gravel; the valves for regulating the flow being placed at the outer end.

The work was commenced in May, 1879. By September, 1881, the trench had been excavated and refilled, and the puddle wall and embankment carried up some height. With about 26ft. of water in the reservoir a leakage appeared around the discharge pipe at the outer slope of the embankment. To ascertain the cause of this, a heading was driven from the outer end alongside the concrete which surrounded the pipe, to the concrete foundation of the puddle wall. Water was met with coming through the concrete surrounding the pipe, and it was expected that the pipe had been fractured. This was

not, however, the case. The concrete showed no signs of fracture, and when some of it was removed to get at the pipe, the leakage was discovered to be running through the concrete, which was much honeycombed, and, although set very hard, was imperfectly put in place. This was not the only source of leakage, for at the end of the heading water was seen coming up outside the concrete foundation of the trench. To follow and locate this was the only course to pursue. A shaft was sunk from the top for ventilation and for facilities for moving the material, and a second trench was sunk outside the original one. (See Fig. 1.) It will be noticed that at the deepest part this was taken rather further than the original foundation, as it was found that a small flow of water was coming through the rock underneath the foundation on the reservoir side, but by far the greater proportion of leakages was coming through the concrete, which in places was very badly and carelessly put in.

When it was thought that the faulty part of the concrete was all exposed, the second trench was refilled with concrete, the face of the first wall being scored both longitudinally and horizontally with deep grooves to form a tie between the two, and to prevent water following along. The concrete for the original and all subsequent work was formed of one part of Portland cement and five parts of broken stone and sand, no stone to exceed 1½ in. in size. The specification required that the concrete should be spread in 8in. layers, and not thrown loosely into place; from what subsequently transpired, it is doubtful whether this was done in the original work. The cement was tested in the usual manner, and found to be satisfactory.

Although the greatest care was observed in refilling the second trench, the result was not entirely successful. When the second wall had been taken up to within about 6ft. of the top of the excavation, the reservoir was allowed to fill, and in February, 1883, with about 39ft. of water in it, the leakage from all sources amounted to over 1,000,000 gallons per day. Several pipes had been put in during the construction of the second wall, in order to convey any leakage to a basin at the outer slope of the bank, from which it could be sent to Forfar, or down the stream as compensation, as might be desired, the intention also being to be able to control the leakage when collected in these pipes by means of stop valves.

The bulk of the leakage was from a pipe which had been placed vertically between the two concrete walls, with an open end at a spot where the first wall was leaking badly, and there was also a large quantity of water springing up between the two concrete walls. A pipe which was brought up from the bottom on the outside of the second trench, and which was laid to take any leakage which might come underneath from the reservoir, yielded very little water, and the leakage from this source did not increase to any great extent as the reservoir was filled. The result of this work was to collect the leakage and utilise it for the town supply. As time went on the leakage also diminished in quantity, until in June, 1883, it was about 354,000 gallons per day, with water 30ft. deep in the reservoir; this quantity compared with 590,000 gallons, the amount a few months previously, with the same pressure from the reservoir.

The valves on the pipes conveying the leakage referred to before were not put on, it being feared that the result of stopping the flow would be to cause the leak to burst out elsewhere, and possibly at a level from which it could not be conveyed into the pipe to the town. The headings were left open, and the filling of the reservoir continued, in the hope that the leakage, which was all, or nearly all, coming through the concrete, and was perfectly clear, would gradually decrease.

In September 1883, a fresh leak occurred, the water coming through the concrete of the first wall near its junction with the puddle, and although the quantity was insignificant, it was much coloured, indicating a probable waste of the puddle. The water in the reservoir at this time was 44ft. 6in. deep, or 5ft. 6in. off being full. When the water level was reduced to 44ft. 2in., the leakage ran

clear. The level was then kept at about 12ft. at which level the leakage from between the two walls was reduced to 233,000 gallons per day. By the end of 1883, the leakage from between the two walls had further decreased, and the small leak discovered in the previous September had not increased, although at times it was discoloured. Early in 1884, the last leak began to be again discoloured, and a slight settlement in the embankment was noticeable on the surface.

It was then decided that some further remedy must be resorted to. A shaft (Fig. 1) was sunk on the inside of the puddle trench to the level of the top of the concrete foundation. In sinking this shaft a large cavity was discovered about 15ft. from the surface in the original ground, which doubtless to some extent accounted for the settlement as well as the discoloration of some of the leakage. When the shaft had reached the top of the concrete foundation of the puddle wall a trench was excavated alongside it similar to one which had been made on the outside, and taken down for a depth of about 25ft. This excavation disclosed much faulty concrete: although in places it was close and watertight, in other places it was so open that water when poured in ran freely away. When the excavation was taken down to the depth stated it was decided not to go deeper, as the second wall put in would arrest any leakage which might come through the first below that level. The excavation which had been taken beyond the 24in. discharge pipe, so as to cut off the water which was known to follow along the concrete surrounding that pipe, was then refilled with concrete to a little above the level of the old concrete foundation, and in order to ensure a thorough connection being made with watertight work, it was connected through the first wall to the second (Fig. 1). This connection was made by cutting out the first wall bit by bit, in lengths of 9ft. or 10ft., and as each section was taken out, the wall above was supported by a cast-iron pillar about 6ft. long, and the concrete put in and allowed to set before the next section was commenced.

By this means the concrete connection was made without the slightest settlement appearing in the first wall, or in the puddle above. The whole of the ground above the top of the third wall was then cut open from the surface and refilled with puddle and concrete, thus entirely cutting off those parts of the original concrete and puddle through which leakage had appeared in such a form as to cause any apprehension. The headings from the outer slope to the concrete foundation of the puddle wall, and along the top of the second wall, had been kept open all this time, and remained so until January, 1887, when the reservoir was full and overflowing for the first time.

At this time the only leakage that was visible was coming from the pipe that had been fixed between the original foundation and the second wall put in, the bottom end of which was below the concrete connection that had been made between the second and third wall, and, therefore, not affected by the construction of the third wall. The leakage from this source amounted to about 135,000 gallons per day, and as it was perfectly clear, and no apprehension of a further increase taking place, the headings were filled up. Since that date to the present time everything has been satisfactory, and with the reservoir full, in April, 1892, the leakage from all sources had decreased to about 30,000 gallons per day.

It will thus be seen that from September, 1881, to June, 1885, or for nearly four years, the work of discovering and remedying these leaks was going on. Many delays arose through having to make alterations in the mode of proceeding, and although the work was of no great magnitude, progress was slow on account of its having to be carried out in a confined situation and step by step.

It may be suggested that the work on the outside of the puddle wall might have been dispensed with, and a new wall on the inside would have been cheaper and more effectual, besides the saving in time that would have resulted. But it was only by sinking outside the puddle wall that the leakage could be located, and the effect of filling the reservoir

could be noticed, and when the trench was sunk, it was obviously better to refill with concrete than with earth or loose rock. The author considers that the whole cause of the trouble was due to the concrete being carelessly put in.

It is worthy of remark that in no other part of the work where concrete was used was there any sign of failure. This particular part of the trench was refilled just before the frost of 1879-80 set in, and it may have been in the hurry to get the concrete done that the carelessness arose. Be that how it may, the author never wishes to have to undertake again such a tedious operation as discovering and remedying a leak which occurs somewhere in work buried from 70ft. to 80ft. underground.

It is stated that the Royal Commission about to be appointed to consider the various phases of the sewage question will be a small body, consisting, in all probability, of seven members. The chairman will be supported by an eminent chemist, a well-known bacteriologist, a couple of engineering experts familiar with the different methods of urban drainage, and probably two Local Government Board officials specially qualified to speak with authority upon sewage matters.

The Effluent Sub-Committee of the Manchester Rivers Committee has agreed to recommend to the committee, and through it to the City Council, the adoption of a system of treatment of the effluent in place of the rejected culvert scheme. The members of the sub-committee have visited a considerable number of places where various methods of treatment are in force, and they have decided in favour of land filtration by what is termed the biological system. No additional land will be required beyond what is already available at Davyhulme. Various sums are named as the probable cost of the scheme, all of them below the quarter of a million which the culvert was likely to entail as an outlay. One estimate places it as low as £60,000.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
March 26	Bedwellty, Wales—Vagrant Wards	Union Guardians	James and Morgan, Charles-street-chambers, Cardiff.
" 26	Chester—Police Station and Court Room	County of Chester	H. Beswick, 17, Newgate-street, Chester.
" 26	Bradford—Rebuilding Sunday School ... ..	... ..	Empsall and Clarkson, 7, Exchange, Bradford.
" 26	Egremont, Cheshire—Erection of Police Station, &c. ... ..	... ..	H. Beswick, 17, Newgate-street, Chester.
" 26	Llandrindod Wells, Wales—Additions to Hotel	Urban District Council	E. M. B. Vaughan, Architect, Cardiff.
" 26	Bishop's Stortford—Fire Brigade Station ... ..	... ..	Surveyor, Council's Offices, North-st., Bishop's Stortford.
" 27	Holyhead—Alterations to Chapel ... ..	... ..	R. Roberts, 12, Newry-street, Holyhead.
" 28	Gloucester—Erection of Cottage Homes	Union Guardians	W. B. Wood, 12, Queen-street, Gloucester.
" 28	Kingston-on-Thames—Alterations at Infirmary, &c.	Union Guardians	W. H. Hope, Union Offices, Kingston-on-Thames.
" 28	Bradford—Erection of Underground Lavatories	Corporation	J. H. Cox, City Surveyor, Town Hall, Bradford.
" 28	Dunstable—Construction of Swimming Bath ... ..	... ..	F. Kelly, Architect, Albion street, Dunstable.
" 28	Keighley—Erection of Eleven Houses	St. Marylebone Guardians	W. H. and A. Sugden, Architects, Cavendish-st., Keighley.
" 28	London, W.—Erection of Fencing and Earthwork	Co-op. Building & Investment Soc. Ltd.	A. S. Snell, 22, Southampton-buildings, Chancery-lane, W.C.
" 29	Grangemouth, Scotland—Block of Dwelling Houses	Great Western Railway Co.	G. D. Page, Old Glebe-chambers, Falkirk.
" 29	Roath, Cardiff—Construction of Station	Corporation	Engineer, Great Western Railway Station, Newport.
" 29	Blackpool—Erection of Houses, Stables, Workshops, &c.	Sick Asylum District	J. Wolstenholme, St. John's Market-buildings, Blackpool.
" 29	Bromley, Middlesex—Alterations, &c., to Asylum	Great Western Railway Co.	J. and S. F. Clarkson, 136, High-street, Poplar.
" 29	Widley, near Solihull—Construction of Station	London County Council	Engineers, Great Western Railway Station, Wolverhampton.
" 29	Woolwich—Erection of Fire Brigade Station ... ..	... ..	Architect's Department, 13, Spring-gardens, S.W.
" 30	Auldearn—Restoration of Parish Church	The Vestry	J. Robertson, Architect, Inverness.
" 30	Hammersmith—Extension of Electric Lighting Station	Warneford Hospital	H. Mair, Town Hall, Hammersmith.
" 30	Leamington—New Wing to Hospital	B. Taylor and Co., Ltd.	Secretary of the Hospital, Leamington.
" 30	Barkisland, near Halifax—Erection of Mill ... ..	... ..	A. C. Williams, 29, Southgate, Halifax.
" 30	Halifax—Erection of Chapel	East Riding Standing Joint Committee	Uteley, Hebblethwaite, & Uteley, 10, Waterhouse-st., Halifax.
" 30	Pocklington, Yorks.—Erection of Police Station, &c.	Lanes. and Yorks. Railway Co.	A. Beaumont, County Surveyor, County Hall, Beverley.
" 30	Whalley, Lancs.—Extension of Station	Co-operative Society, Ltd.	Engineer, Hunt's Bank, Manchester.
" 30	Ripponden, Yorks.—Erection of Five Houses	Board of Works	W. C. William, 29, Southgate, Halifax.
" 30	Greenwich—Supply of Yorkshire Stone	School Board	J. Spencer, 141, Greenwich-road, Greenwich.
" 30	Coventry—Cooking Centre, &c.	Corporation	G. and J. Steane, 22, Little Park-street, Coventry.
" 31	Bolton—Erection of Hospital Pavilion, &c.	St. Mary's Vestry, Islington	Borough Surveyor, Town Hall, Bolton.
" 31	Bridlington Quay—Church Alterations, &c. ... ..	... ..	J. V. Kingsley, Marshall-street, Bridlington Quay.
" 31	London, N.—Erection of Mortuary Chapel	Prison Board	W. F. Dewey, Vestry Clerk, Vestry Hall, Upper-street, N.
" 31	Marsden, near Huddersfield—School Alterations, &c.	School Board	J. Kirk and Sons, Architects, Huddersfield.
" 31	London, S.W.—Supply of Building Materials and Tools	Union Guardians	Prison Commission Office, Home Office, Whitehall, S.W.
April 1	Pontypool—Erection of House, School, &c.	Union Guardians	D. J. Lougher, Architect, Pontypool.
" 2	Windsor—New Infirmary Buildings	Urban District Council	Edginton and Summerbell, Architects, Windsor.
" 4	Wokingham—Board Room and Offices	School Board	A. E. Sidford, Denton-chambers, Wokingham.
" 4	Leyton—Extension of Electricity Works	School Board	H. C. Bishop, Cathall-road, Leytonstone.
" 4	Adrossan, Scotland—Erection of School	School Board	J. Armour, Jun., Architect, Irvine.
" 4	Barry, Wales—Additions to Schools	School Board	G. Thomas, Queen's-chambers, Cardiff.
" 4	Bedwellty, Wales—Erection of School	Paddington Vestry	James and Morgan, Charles-street-chambers, Cardiff.
" 4	London, N.—Erection of Underground Convenience	County Council	Surveyor, Vestry Hall, Harrow-road, W.
" 5	Ranceby, near Sleaford, Lincs.—Foundation of Asylum	Corporation	G. T. Hine, 35, Parliament street, S.W.
" 5	Droitwich—Erection of Retort House, &c.	Urban District Council	A. T. Harris, Gas Manager, Town Hall, Droitwich.
" 6	Aldershot—Erection of Hospital	New Brompton Economical Society	N. F. Dennis, Surveyor, Council's Offices, Aldershot.
" 18	New Brompton—Erection of Bakery, Flour Store, & Shop	H. E. Moss	E. J. Hammond, 111, High-street, New Brompton, Kent.
July 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.	Industrial Co-operative Society, Limited	Brazilian Legation, London.
No date.	Bradford—Reconstruction, &c., of Hotel, &c. ... ..	... ..	W. G. R. Sprague, Fitzalan House, Arundel-st., Strand, W.C.
"	Cheslyn Hay, near Walsall—Church Alterations, &c. ... ..	... ..	Failey and McConnell, Architects, Bridge-street, Walsall.
"	Keighley—Erection of Twenty-four Houses ... ..	... ..	J. Haggas, Architect, North-street, Keighley.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Leeds—Erection of Factory	Working Men's Co-operative Soc., Ltd.	S. E. Smith and J. Tweedale, 12, South-parade, Leeds.
"	Long Eaton, Notts—Erection of Shops, Offices, &c.	Working Men's Co-operative Soc., Ltd.	E. R. Ridgeway, Architect, Long Eaton, near Nottingham.
"	Lowestoft—Salvation Army Buildings	Inlaid Linoleum Co., Limited	A. Gordon, 101, Queen Victoria-street, London, E.C.
"	Selby, Yorks.—Erection of Factory, &c.	Inlaid Linoleum Co., Limited	J. F. Walsh, Lancs. and Yorks. Bank-chambers, Halifax.
"	Studland, Swanage—Erection of Church	Penrhynceiber, South Wales—Erection of Hotel	— Damon, Retreat, Church-hill, Swanage.
"	Golborne, Lancs.—Additions to Church	Park Hotel Co.	Heaton, Ralph, and Heaton, Architects, King-st., Wigan.
"	Penrhynceiber, South Wales—Erection of Hotel	Rochdale Union	Morgan and Elford, 34, Canon-street, Aberdare.
"	Middlewood, near Wardle—Cottage Homes	Rev. P. P. Campbell	Butterworth and Duncan, 4, South-parade, Rochdale.
"	Newboro', Lincs.—Additions to School	Rev. P. P. Campbell	J. G. Stallebrass, Architect, North-street, Peterborough.
"	Brierfield, Lancs.—Erection of Eight Houses	Rev. P. P. Campbell	— Dent, Architect, Railway-street, Nelson.
"	Bradford—Houses, Stables, &c.	Rev. P. P. Campbell	W. Moore, 40, Sunbridge-road, Bradford.
"	Belfast—Two Shops, Nine Houses, &c.	Rev. P. P. Campbell	W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Laurencetown, co Down—Additions to Parochial House	Rev. P. P. Campbell	J. J. M'Donnell, 27, Chichester-street, Belfast.
ENGINEERING—			
March 28	Birkenhead—Erection of Iron Pier, Bridge, &c.	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 28	Darwen, Lancs.—Electrical Plant	Corporation	Electrical Engineer, Town Hall, Darwen.
" 28	Alton, Hants.—Oil Engines and Pumps	Urban District Council	E. B. Grantham and Son, 23, Northumberland-avenue, W.C.
" 28	Perth—Construction of Steel Girder Bridge	Lord Provost, &c.	Blyth and Westland, 135, George-street, Edinburgh.
" 29	Brighton—Construction of Covered Reservoirs	Town Council	F. J. Tillstone, Town Clerk, Town Hall, Brighton.
" 29	London, E.C.—Supply of Bridges, &c.	Bengal-Nagpur Railway Co., Ltd	Offices, 132, Gresham House, Old Broad-street, E.C.
" 29	Bassaleg and Risca, Mon.—Widening Line, &c.	Great Western Railway Co.	Resident Engineer, Theatre Royal-chambers, Cardiff.
" 29	Devonport, &c.—Widening Line, &c.	Great Western Railway Co.	Engineer, Great Western Railway Station, Plymouth.
" 29	Ipswich—Electric Lighting, Wiring, &c.	Union Guardians	A. G. Vulliamy, Clerk, 6, Tower-street, Ipswich.
" 30	Agha Bay, Algeria—Construction of Harbour	North-Eastern Railway Co.	Commercial Department, Foreign Office, S.W.
" 30	Wetherby, Yorks.—Railway Works	Corporation	H. Copperthwaite, Engineer's Office, N.E. Railway, York.
" 31	Sunderland—Supply of Boiler	Ministry of Commerce and Agriculture	Borough Surveyor, Town Hall, Sunderland.
April 1	Sophia, Bulgaria—Supply of Engines, &c.	Horse Committee	Commercial Department, Foreign Office, S.W.
" 4	Bournemouth—Motor Vehicles	Royal Gaslight Co.	F. W. Lacey, Municipal Offices, Bournemouth.
" 4	Windsor—Supply of Gas Purifier	Norfolk County Council	Company's Offices, 15, Victoria-street, Windsor.
" 7	Ditchingham, Norfolk—Reconstructing Bridge	Callendar and Oban Railway Co.	T. H. B. Heslop, County Surveyor, Norwich.
" 20	Glasgow—Ballachulish Railway Extension	Municipality	Sir John Wolfe Barry, 21, Delahay-street, Westminster.
" 25	Sophia, Bulgaria—Supply of Drinking Water	Hygienic Commission	Commercial Department, Foreign Office, S.W.
July 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
IRON AND STEEL—			
March 26	Hunslet, Leeds—Supply of Cast-iron Socket Pipes	Rural District Council	W. B. Pindar, Clerk, Leek-street, Hunslet, Leeds.
" 28	St. Helen's, Lancs.—Supply, &c., of Rails, &c.	Highway Committee	G. J. C. Broom, Borough Engineer, St. Helens.
" 29	London, W.—Supply of Bridge Girders, &c.	Great Western Railway Co.	Engineer, Paddington Station, London.
" 29	Southend—Supply of Castings, &c.	Corporation	A. Fidler, Municipal-buildings, Clarence-road, Southend.
" 30	Winchester—Supply of Cast-iron Pipes	Corporation	W. Bailey, Town Clerk, Guildhall, Winchester.
PAINTING AND PLUMBING—			
March 28	Durham—Painting Bridge	Corporation	J. Coldwell, Surveyor, Market-place, Durham.
" 28	Wolverhampton—Painting Lodge and Boathouses	Parks and Baths Committee	J. W. Bradley, Surveyor, Town Hall, Wolverhampton.
" 31	London—Painting, &c., at Model Dwellings	St. James's Vestry, Westminster	Vestry Hall, Piccadilly, W.
ROADS—			
March 26	Sleaford, Lincs.—Supply of Broken Granite	Urban District Council	E. Clements, Clerk, Council Offices, Sleaford.
" 26	Chester—Carting Macadam, &c.	County Council	County Surveyor, Chester Castle.
" 26	Burnley—Carting Coal and Coke	Town Hall and Baths Committee	A. Suthers, Baths Manager, Burnley.
" 26	Burnley—Supply of Materials	Highways and Sewage Committee	G. H. Pickles, Borough Surveyor, Town Hall, Burnley.
" 26	Clayton-le-Moors, Lancs.—Supply of Materials	Urban District Council	A. Dodgeon, Surveyor, Council Office, Clayton-le-Moors.
" 26	Colne, Lancs.—Supply of Materials	Corporation	T. H. Hartley, Borough Surveyor, Town Hall, Colne.
" 26	Denton, Lancashire—Street Works	Urban District Council	G. H. Newton, Surveyor, Market-place, Denton.
" 26	Driffield, Yorks.—Supply of Whinstone, Slag, &c.	Rural District Council	T. C. Beaumont, Surveyor, Driffield.
" 26	Hunslet, Leeds—Supply of Road Materials	Rural District Council	W. B. Pindar, Clerk, Leek-street, Hunslet.
" 26	Newbury—Repair of Highways	Rural District Council	H. S. Talbot, Surveyor, Red Lodge, Cold Ash, Newbury.
" 26	Warmminster—Supply of Flints, &c.	Rural District Council	R. H. Bourne, Surveyor, Crockerton, Warmminster.
" 28	West Hartlepool—Limestone Tar Pavement	Corporation	J. W. Brown, Borough Engineer, West Hartlepool.
" 28	Wellingborough—Supply of Granite	Rural District Council	W. Jackson, Clerk, Workhouse, Wellingborough.
" 28	Totton, Hants.—Kerbing in Street	Corporation	County Surveyor, The Castle, Winchester.
" 28	Heywood, Lancs.—Supply of Materials	Corporation	J. A. Settle, Borough Surveyor, Municipal-bldgs., Heywood.
" 28	Brentwood, Essex—Carting Gravel, &c.	Billerica Rural District Council	H. G. Clarke, Surveyor, Wickford.
" 28	Waterloo, Lancs.—Supply of Macadam, Setts, &c.	Urban District Council	F. S. Yates, Surveyor, Town Hall, Waterloo.
" 28	Southwam, Yorks.—Team Work	District Council	Godfrey, Rhodes, & Evans, Commercial Bank-chbrs., Halifax.
" 29	Acton—Road Materials	District Council	D. J. Ebbetts, 242, High-street, Acton, W.
" 30	Kingston-upon-Thames—Street Works	Corporation	Borough Surveyor, Clattern House, Kingston-upon-Thames.
" 30	Blaby, Leicester—Supply of Granite and Carting	Rural District Council	G. E. Bouskell, Queen's-chambers, Horsefair-st., Leicester.
" 30	Gravesend—Supply of Granite Spalls	Urban District Council	Master of the Workhouse, Trafalgar-road, Gravesend.
" 30	Litherland—Road Materials, &c. (Two Contracts.)	Urban District Council	W. B. Garton, 25, Sefton-road, Litherland.
" 30	Litherland, Lancs.—Supply of Granite Setts, &c.	Urban District Council	W. B. Garton, 25, Sefton-road, Litherland.
" 31	Romford—Laying and Supply of Granite Kerb, &c.	Urban District Council	Surveyor, Council Offices, Romford.
" 31	Leek, Staffs.—Supply of Materials	Urban District Council	J. Myatt, Town Surveyor, Leek.
" 31	Middleton, Lancs.—Supply of Setts, &c.	Corporation	W. Welburn, Borough Surveyor, Town Hall, Middleton.
April 1	Market Harborough—Supply of Granite	Oxenden Rural District Council	C. Burgoine, Clerk, Market Harborough.
" 2	Aylesbury—Supply of Granite	Bucks County Council	R. J. Thomas, County Surveyor, County Hall, Aylesbury.
" 2	Cockermouth—Road Repair	Rural District Council	J. B. Wilson, Council's Surveyor, Cockermouth.
" 4	London, W.—Supply of Materials	Hestor & Isleworth Urb. Dist. Council	W. A. Davies, Engineer, Town Hall, Hounslow.
" 4	Southampton—Making Road, &c.	Urban District Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
" 6	Hove—Laying, &c., of Wood Paving	Urban District Council	H. H. Scott, Town Hall, Hove, Sussex.
" 12	Newark—Supply of Granite and Slag	Claypole Rural District Council	C. D. M. Trinder, Dist. Surveyor, Brant Broughton, Newark.
No date.	Wortley—Supply of Granite, Slag, &c.	Rural District Council	F. Crawshaw, District Surveyor, Loxley.
"	Acton—Supply of Tar Paving Materials	District Council	D. J. Ebbetts, 242, High-street, Acton.
SANITARY—			
March 26	Wombwell, Yorks.—Scavenging	Urban District Council	J. Robinson, Clerk, Wombwell, Yorks.
" 28	Shettleston, Scotland—Sewer Pipes, &c.	District Committee	Warren and Stuart, 115, Wellington-street, Glasgow.
" 29	Runcorn—Sewering	Urban District Council	Surveyor to Council, Runcorn.
" 30	Stanley, Durham—Removal of Refuse	Urban District Council	J. Routledge, Surveyor, Council Offices, Stanley.
April 4	West Malling, Kent—Cast-iron Drain	Union Guardians	Professor H. Robinson, 13, Victoria-street, Westminster.
" 5	Epping, Essex—Construction of Sewers, &c.	Rural District Council	E. Egan, 39, Lombard-street, London.
" 5	Jarrow—Laying Pipe Sewers	Rural District Council	J. Petree, Borough Surveyor, Jarrow.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
April 30	Cricklade and Wootton Bassett—Water Supply Scheme	£21, £10 10s.	Rural District Council.
May 1	Belper—Sewage Disposal Schemes	£52 10s., £26 5s.	Urban District Council.
" 28	Trowbridge—Technical School	£40, £30, £20	The Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major F. L. Anderson, R.E., South Camp, Aldershot.
July 1	San Francisco Bay—Designs for University Buildings...	£10,000 (divided in two competitions)	Trustees of the Pebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.
No date.	Godalming—Designs for Municipal Buildings	£52 10s.	Borough Council.

DESIGN & DETAIL OF DOMESTIC BUILDING.

BY JOHN E. NEWBERRY, A.R.I.B.A.

I.

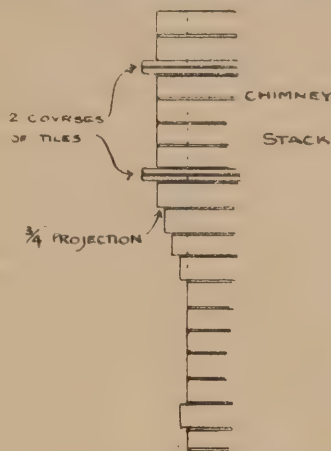
IN the following article some notes are given on the design and detail of a country cottage-residence of red brick and tile. Appropriate internal fittings will be considered in a future article. Such a building would be suitable in Kent, Surrey, or Sussex, where tiles and bricks of a charming colour can be obtained.

MATERIALS.—So very much depends on the description of brick and tile used. They should be hand-made if possible, and finished with a sanded face.

THIN BRICKS, five courses to a foot, give scale to a building, but are expensive to use throughout. It is the practice of some architects to point their brickwork with white mortar, some again use grey or pink, but in no case should black be employed, and "tuck pointing" is a vile expedient, completely destroying the effect of "quality." White mortar finished with a fairly wide weathered struck joint is probably the most suitable and effective mode for our purpose.

TILES.—Kent and Surrey furnish hand-made tiles of a rich brownish purple hue. In the course of a few years they weather a still better colour. Valley and hip tiles look more

sists of a single course laid flat on the back of rafter with the lapped tiles above it, the tiles projecting $1\frac{1}{2}$ in. This arrangement enables one to dispense with the objectionable cement fillet, and what little cement is used is kept back from the edge of the tiles. Another small matter that is often not considered is the soffit, or under side of eaves and gables. The old method was just to continue the tile



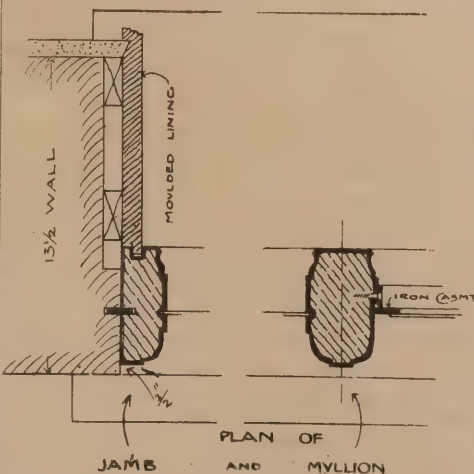
laths across, so that they show underneath with the tiles between them. This looks far better than being filled in with V-jointed boarding, "stained and varnished."

EAVES.—The eaves should have a good projection of from 12 in. to 18 in., and it is a characteristic method of construction to stop the rafters on the plate and form the eaves by means of "sprocket" pieces. This enables the sprockets to be made thicker than the common rafters, if necessary. They should not be less than $2\frac{1}{2}$ in. or 3 in. in thickness.

A neat method of finishing roof-tiles against vertical brick surfaces is to cut a groove $1\frac{1}{2}$ in. deep to receive the tiles, and then bed them in cement and point up flush. Do not forget to have the tiles tilted slightly where they abut against walls; $\frac{3}{4}$ in. is quite enough.

IN TILE-HANGING, the tiles may be fixed either to wood framing, in which case it is boarded and battened to receive them, or nailed to the brickwork. A good method of hanging tiles to 9 in. brickwork in mortar, is to build such parts in brick-on-edge (garden wall bond), and to nail the tiles into the joints with strong cut nails. This does away entirely with all wood, except at the foot of tile-hanging.

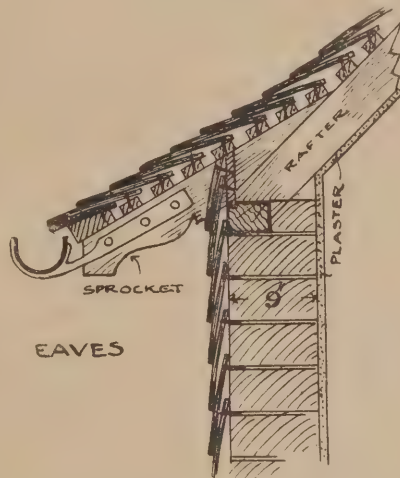
STEPS look picturesque if built of hard red paving brick on edge set in cement, any extra rise over $4\frac{1}{2}$ in. being made up with tiles. Red paving tiles, 6 in. and 12 in. square, are to be obtained, which form capital floors for verandahs, porches, etc.



CHIMNEY-STACKS.—Well considered chimney stacks help the grouping of a building such as we are considering, and an angle nook is an appropriate feature. Personally I consider 9 in. by 9 in. flues amply sufficient, but the stack should have 9 in. external walls to protect the flue from damp and cold. A tile creasing is also useful to prevent the rain from soaking down the stack. A big chimney

always looks well if the parts are properly proportioned and kept delicate in projection. Some very delightful examples of old chimneys have recently appeared in the *BUILDER'S JOURNAL*, but much of their charm would be lost if built with the ordinary-sized bricks, as old ones are a little less than 2 in. in height. The writer has seen bricks measuring five courses to the foot used for the upper part of stacks only with success. A simple form of head is shown on the detail.

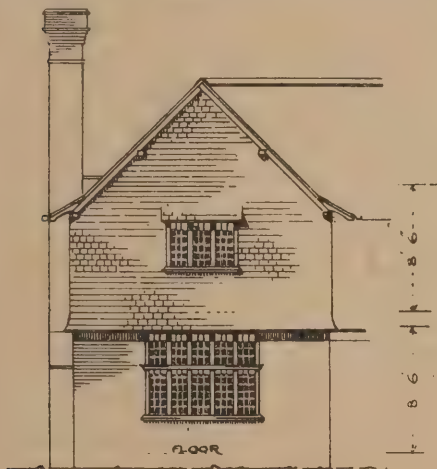
WINDOWS.—As already mentioned in the preliminary article, the treatment of the windows is one of the most important considerations in any house. In a cottage, casement windows are suitable and picturesque. The details show moulded wood mullions founded on old examples with a very simple and effective form of iron casement, also similar in pattern to those found in old cottages. Iron casements are preferable to wood, as they keep out draught and rain better, and do not look so clumsy. In a four or five light window it is unnecessary for more than two or three lights to open. A casement window of this description should not be larger than 1 ft. 3 in. to 1 ft. 6 in. wide by 3 ft. to 3 ft. 6 in. high. If a transom is used, the upper part should not be square. A nice proportion is about 3 in. less than the lower light. A few of the upper lights should be iron casements hung on centres, and opened from inside with cords. The face of door and window frames should be kept half an inch back from the face of brickwork. The sill, which should be of English



oak, should project, and either be bedded in white lead on the brickwork, or have a galvanised wrought iron water bar, as shown on detail. A similar bar should be built in with the frame and brick jamb. The internal joinery of these windows is very simple, moulded linings suiting the general smallness of scale.

GLAZING.—These casements and windows should be glazed with clear glass in leaded lights in squares 5 in. to 6 in. wide, and 6 in. to 7 in. high. Quarry glazing is often objected to as obstructing the light and view; the former objection is true to a small extent, but the latter is quite a fallacy. The framework of lead, in the opinion of the writer, adds charm to the landscape, and gives a sense of being inside, which a large sheet cannot do. In the summer the casements stand wide open, the fixed lights forming a good contrast to the open spaces. Lead glazing is also more suitable to iron casements, and enables the section shown to be used instead of a more elaborate and costly arrangement with some form of rebate, which is necessary for a single pane of glass. It also allows the mullions in fixed lights to be merely grooved, instead of being rebated and beaded, as the glass is sprung into position. The lights should be secured to small saddle bars, and they look far better if square, say, $\frac{3}{4}$ in. by $\frac{3}{4}$ in. It is usual to put them on the inside only, but I prefer to put them outside as well for greater security, and also because the horizontal lines give more interest to the expanse of leaded lights.

CURTAINS.—Blinds are unnecessary to these kind of windows. Short thick curtains next



KEY ELEVATION

picturesque if of the old country patterns, which are semi-circular in form. The hip tiles should not lie flat with the roof, and should be neatly pointed with cement kept back an inch from the edge of tile. The old saddle-back ridge is the most suitable termination to the roof. A cheap and effective method of covering a cottage roof is to bed the tiles in hay. With double plastering to the rooms in roof this keeps them warm and free from draughts.

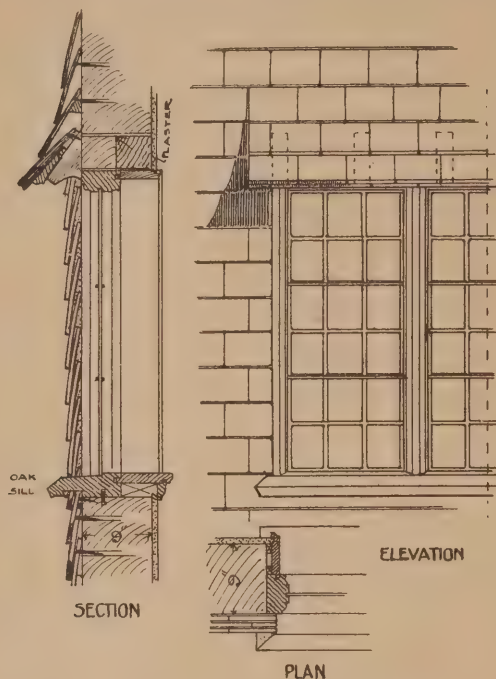
ROOFS.—In designing a small house of this kind the grouping and arrangement of roofs should be carefully studied; the simpler they are, as a general rule, the better they look. A good method of roofing one-story offices is to continue the slope from the main ridge right down to an eaves some 8 ft. above the ground floor. The pitch or angle of tile roofs should not be less than 45° .

HEIGHT OF ROOMS.—An important factor in the elevational treatment is the height of the rooms. 8 ft. 6 in. to 9 ft. in the clear is ample. If more than that is used, it becomes very difficult to treat the windows appropriately, and the whole house is too lofty for a cottage. If more lofty rooms are required, sash windows should be adopted, and the dwelling differently treated from its inception.

BARGE RAFTERS.—A simple form of gable is the "barge rafter," which is the same depth as the common rafters, but should not be less than 3 in. thick; the plates should run through to support them, with additional short plates where required. Much of the effect depends upon the treatment of the roof tiles upon them. They look neatest when the verge con-

the glass answer best. They should be hung on rods fixed close to the head, and should just clear the window board. If to a transom window, they should be in two heights, the lower rod being fixed to back of transom.

THE ENTRANCE DOORWAY should be broad and a better proportion is gained by keeping it low, say, 6ft. 6in. to 6ft. 9in. high, and 3ft. 9in. to 4ft. wide. A framed, ledged, and



braced door is appropriate, and should have neatly hammered wrought-iron strap hinges, which will look all the better if the marks of the hammer are allowed to show.

The colour of the external woodwork is of great importance. Probably a good bright yellowish green, what is known as "fig-green," is the most satisfactory colour: it goes well with the reds of bricks and tiles, and lasts better than white does.

(To be continued.)

At Wesley Rock, Madron, a new Wesleyan Chapel has been erected.

In addition to the projected new Opera House and Theatre of Varieties, in Norwich, it is proposed to erect a first-class theatre. Plans have been prepared by Mr. Sidney Stott.

A new block of buildings is about to be erected at Llandrindod Wells for the London and Provincial Bank, Limited. The directors have instructed the architects, Messrs. Wilson and Moxham, Swansea, to prepare the necessary drawings.

An inquiry has been held at Edinburgh under the Housing of the Working Classes Act. Mr. Cooper, Burgh Engineer, explained the plans of the properties affected under the inquiry. He stated that the total cost of the scheme would be £43,650, the net amount being £21,150.

It has been decided to build a second theatre at Dover, a large plot of land in a prominent position near the sea front having been purchased for this purpose. The theatre, which is to be completed before the end of the present year, is to accommodate about 1500 people.

The fourteenth annual exhibition of the Home Arts and Industries Association will be held on May 19th to 23rd at the Royal Albert Hall, and will include exhibits from Sandringham, Ashridge, Keswick, &c. Competitions and demonstrations in various subjects will be held each day.

The plans are out for the new school buildings by which the centenary of the Royal Masonic Institution for Boys is to be celebrated. They will, indeed, form a notable pile, and, so far as can be gathered from the drawings, will form an artistic ensemble. They are to be erected on an estate at Bushey some sixty acres in extent.

NORTHAMPTON INSTITUTE.

A NEW CITY POLYTECHNIC.

THE formal opening of the Northampton Institute, built in Clerkenwell from the designs of Mr. E. W. Mountford, F.R.I.B.A., took place last week. Broadly speaking, the new Institute in Clerkenwell is to provide the recreative and technical side of a complete Polytechnic. The land upon which the Institute stands is roughly one and a quarter acres in extent, and is triangular in shape, the apex of the triangle resting upon Northampton Square and the base upon St. John Street Road. The block of buildings in St. John Street Road contains the main entrance in the centre, with the large hall on the north, and on the south a four-story building, chiefly, but not entirely, consisting of rooms devoted to the social and recreative work of the Institute. The

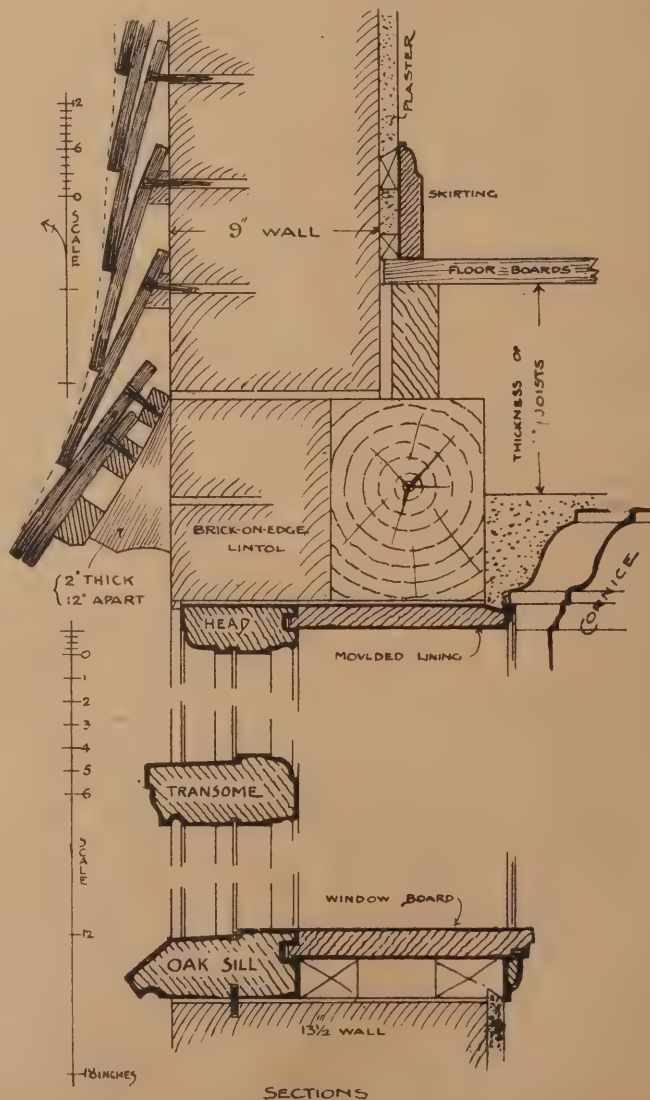
NORTHERN SIDE OF THE TRIANGLE,

extending from St. John Street Road to Northampton Square, along Lower Charles Street, consists of the buildings which contain the bath and the gymnasium, each of which is 120ft. long. The former has dressing-rooms beneath, and the latter has over one end of it a three-story building devoted to educational work. The other or southern side of the triangle, in Ashby Street, contains a five-story building entirely for educational purposes. These buildings enclose an internal triangle or courtyard, from which the inner rooms and corridors derive their light. On two of the floors the corridors run completely round the building, the other floors having corresponding corridors as far as

the limits to which they extend. The various floors are reached by three staircases placed at the angles of the triangle formed by the courtyard. Over the main entrance there is a tower supporting a bracket clock, and containing in the belfry a heavy peal of bells, intended to act as the chimes and hour bell of the clock. To describe in detail the various class buildings would pass beyond our space limit; but it may be said, briefly, that the Institute is most complete, structurally, and essentially up to date and thorough in its equipments. The trade departments embraced in the educational section are fully representative, and the great facilities for study will no doubt be an inestimable boon to the student whether his subject be painting and decorating, drawing, building construction, plastering, wood carving, engineering, or the score of other subjects comprising the curriculum. The Institute has been very efficiently staffed, with Mr. E. Mollineux Walmsley, D.Sc., F.R.S.E., principal. Exclusive of the site given by the late Marquis of Northampton, and valued at from £25,000 to £30,000, the cost of the building has been £80,000, with about £12,000 further for furnishing and equipment. The building contract has been in the hands of Mr. W. Wallis, of Balham.

A PROPOSAL is on foot to fill one of the windows in the Winchester Cathedral with stained glass to the memory of Jane Austen, whose remains are interred in the cathedral.

The Church of St. Aidan, at Shobnall, Burton, has just been consecrated. The church was erected ten years ago, but the consecration could not take place earlier, as it was built on leasehold ground, by Messrs. Maw, Crossman, and Paulin, at a cost of £3000.



R.I.B.A.

THE PRIZES AND STUDENTSHIPS,
1898-99.

THE pamphlet giving particulars of the Institute prizes and studentships for 1898-99 is issued to members with the current number of the Journal. There is an important change in the conditions of one Studentship to which it is desirable that special attention should be directed. For some years the "Owen Jones Fund" has been increasing, and lately it has benefited under Owen Jones's will by the death of an annuitant—Hannah Jane Jones. It has therefore been decided by the Council that the Owen Jones Studentship should be £100 in value, and that the tour of the student should be of not less than six months' duration. Certain modifications have also been made in the regulations for the "Arthur Cates" Prize.

The following is a brief summary of the subjects set and the general conditions:—

THE ESSAY MEDAL AND TWENTY-FIVE GUINEAS, open to British subjects under forty years of age.—Subject: "The Use and Value of Colour in Architecture."

THE MEASURED DRAWINGS MEDAL AND TEN GUINEAS, open to British subjects under the age of thirty.—Competitors must submit their own measured drawings of any important building, classical or mediæval, in the United Kingdom or abroad.

THE SOANE MEDALLION AND £100, open to British subjects under the age of thirty.—Subject: Design for a Concert Hall to seat 2500 persons.

THE PUGIN STUDENTSHIP (Silver Medal and £40), open to members of the Profession (of all countries) between the ages of eighteen and twenty-five.—Awarded to the candidate who submits the best selection of drawings (by preference measured drawings of Mediæval Buildings) and testimonials.

THE GODWIN BURSARY (Silver Medal and £40), open to members of the Profession without limit of age.—The object of the Bursary is to encourage the study of works of modern Architecture abroad, and candidates must submit selections of practical working drawings, or other evidence of special practical knowledge, and testimonials. The knowledge of at least one foreign language is a necessary qualification.

THE OWEN JONES STUDENTSHIP (Certificate and £100), open to members of the profession under the age of thirty-five. Candidates must submit testimonials with drawings, some of which must be from existing buildings, and other examples exhibiting their acquaintance with colour decoration and with the leading subjects treated of in Owen Jones's "Grammar of Ornament."

THE TITE PRIZE (Certificate and £40), open to members of the profession under the age of thirty. Subject: A Royal Mausoleum, not exceeding 12,000ft. in area.

THE GRISSELL PRIZE (Gold Medal and ten guineas), open to British subjects who have not been in professional practice for more than ten years.—Subject: A Fruit, Flower and Vegetable market for a small provincial town, on any open site of 100ft. square. The market to be covered with iron and glass; roof supported on iron columns.

THE ASHPITEL PRIZE (Books to value of ten guineas), awarded to the student who most highly distinguishes himself in the Final Examinations, 1898.

THE ARTHUR CATES PRIZE (Books to value of ten guineas).—This prize will be given by Mr. Arthur Cates at each Final Examination, until further notice, to the student (successful in passing the examination) whose testimonies of study, together with certain specially prepared sheets of drawings, are considered by the board best to merit the prize.

MESSRS. FREDERICK GOODALL, W. W. Oulless, J. S. Sargent, and Ernest Crofts are the artists to whom the hanging of the pictures in the Academy Exhibition of 1898 has been entrusted.

Professional Items.

ARMLEY.—A new Methodist chapel in Hall Lane, Armley, has just been opened. The total cost of the chapel and the adjoining Sunday school is estimated at £3850. The style of Architecture is a plain treatment of Gothic. The chief external features are a tracery window in the front gable and a square tower with an octagonal spire. The inside of the chapel consists of nave and side aisles. It is 52ft. long by 39ft. wide. A deep recess behind the pulpit forms the organ and choir chamber. A clerestory runs the whole length of the nave, supported by ornamental iron columns and wrought-iron stanchions, filled with wood framing and leaded lights. Between the columns are plastered, moulded arches. The woodwork is of yellow pine, varnished. The building is admirably lighted by windows glazed in diamond and square leaded lights. The pulpit and communion railings are of English oak. The chapel provides accommodation for 410 persons. The school, situated behind the chapel, consists of a central hall, 52ft. long by 28ft. wide, out of which five class-rooms open. The minister's vestry, a caretaker's house, &c., are placed between the chapel and the school. The architect is Mr. W. S. Braithwaite, of South Parade, Leeds, and the work has been carried out by the following contractors:—Mr. W. Lolley (brick and mason work), Mr. J. Taylor (carpenter and joiner), Messrs. W. and C. Barrand (plumbers and glaziers), Mr. J. D. Dakin (plasterer), Messrs. J. Atkinson and Son (slaters), Messrs. Newsom, Roberts, and Co. (heating), and Mr. H. Smith (painting).

BRADFORD.—The restoration works at Bradford Parish Church are progressing satisfactorily. The removal of the organ from the Leventhorpe chapel, and the clearing away of a wooden partition which blocked the arch between that chapel and the north aisle, has opened up a really pretty and unexpected vista across the church from the south door, the chapel itself being of some interest by its possession of a square-headed window unique in the building. The destruction of the vestry adjoining the Leventhorpe chapel has opened to view an ancient hagioscope or "squinch," affording a view of the high altar through the wall from an upper chamber which must have existed in the ancient vestry. As this will necessarily be concealed by the new vestries which are to be erected, archaeologists should take an early opportunity of seeing it. The Restoration Committee have decided that the internal walls should be left free from plaster, and the Bishop is said to have expressed approval of that course. The removal of the old plaster has already been very largely carried out. In the process several interesting mason's marks and some old black letter inscriptions and decorative scroll-work have been discovered. The inscriptions, which are in all likelihood of post-Reformation date, since they are in English, are painted in fresco on the wall roughly levelled up with plaster, but they will necessarily be removed with the plaster. They are, however, in a very fragmentary condition. Under the plaster over the chancel arch there is known to be an ancient painting of a figure in coloured drapery, but when this was uncovered a generation ago, at the restoration works then carried out, it was decided to be of so fragmentary a character as not to be worth preservation, and it was again covered with whitewash. This will also, of course, finally disappear with the removal of the plaster. The stone-work inside, though far from being entitled to the term ashlar, has been found not so rough as was expected, and when pointed and in a few places renewed, it will give the neat finish which is the desire of the modern restorer. Externally the work of disinterment and reinterment is concluded, and the foundations of the new north transept are now in. The south transept will also be speedily put in hand.

CARDIFF.—A new Baptist school-chapel has been opened in Albany Road. Designed by Messrs. Habershon and Fawckner, of Cardiff,

and erected by Messrs. E. R. Evans Brothers, builders, of the same town, at a contract price of £2300, the building consists of a large school-room, ten class-rooms, an infants' room, and a vestry hall, and is so designed as to serve also as a place of worship pending the erection of a permanent church building immediately adjoining. The structure, which is in the Renaissance style of Architecture, is built of Newbridge stone, with Bath stone dressings, and the front elevation faces Blenheim Road, and is carried up with three gables.

DUNDEE.—Negotiations have been in progress for some time past, and are now all but completed, having in view the construction of an arcade of shops and business premises in a central locality in Dundee. The project is to run a covered thoroughfare from the east side of Albert Square to Murray Gate, in a line almost parallel with Commercial Street, and with this object its promoters have purchased property for £10,000. The intention is to reconstruct the Albert Square frontage upon a more pretentious and elegant scale, providing a large and suitable entrance to the arcade within.

FALMOUTH.—In the course of its existence of 236 years, Falmouth Parish Church has undergone considerable alteration. The site originally stood between Arwenack and the village of Smithick, but the growth of Falmouth surrounded it with houses, and now the church is in the heart of a populous district. Erected as a memorial to King Charles the Martyr, the church is one of considerable interest, and its connection with the rector's rate gives it an unique position. The middle of the building was first erected, additions being made to the east and west as the congregation increased. This accounts for the peculiar arrangement of the columns, which were set at uneven distances. Previous to the present work of restoration the nave was divided from the aisles by four columns, composed of granite. They were of an unusual character, the granite being surmounted by Ionic capitals in plaster. Recent alterations have not caused any change in the ground plan, except the re-arrangement of the columns, so that the spaces between them are now equal. Formerly uneven, the entablature now runs uniformly right through the building. Two of the columns in the restored building are of marble, with alabaster caps, and mark the line of the new chancel, according to the eastern extension scheme of the architect. Lack of funds prevents the completion of this work at present, but when accomplished it will add much of symmetry to the appearance of the interior. In view of future extension a temporary window has been placed where the chancel is designed to be carried out. The removal of the old side galleries has greatly improved the look of the building. With an ornamental front of teak wood the west gallery is retained. The nave was covered by a low segmental ceiling, and the aisles had sloping ceilings. Now there are new semi-circular ceilings, divided by arches, and encircled with plaster work in a design of flowers and birds. Vaulting lines add to the artistic character of the ceilings, and from the intersections hang long gas pendants. The building has been heightened more than 3ft. A completely new and secure roof has been placed on the church. The dilapidated condition of the old roof was really a menace. All the floor has been concreted and covered with wood blocks, save the pavements in the nave and aisles, which consist of Portland stone and slate. A large number of vaults in the floor have been filled up. New seats of a more comfortable and substantial character have been put in. They are mostly of stained red deal, with moulded ends. In the nave the ends are of moulded oak. Over a thousand people can be provided with sitting accommodation. When the work of restoration was commenced there was a doubt as to the safety of the walls, but they proved to be quite sound. It is estimated that the total cost of the work will be nearly £3000.

GLOUCESTER.—The locally historic building, Ribston Hall, has been put into habitable

repair, and will be used as a sanatorium. The building is of a most solid and commodious character, and has been completely renovated, redecorated, and furnished throughout. The house is four stories high, there are thirty rooms, and baths on every floor. There is an extensive library and a lecture hall large enough to accommodate nearly 200 persons. The sanatorium is intended to give the advantages of hydropathic treatment. The drainage and sanitary arrangements have been remodelled on the latest and most improved principles.

GREAT MASSINGHAM.—A new reredos has been erected in the parish church. It is in the form of a triptych, the central panel being a conventional representation of the Crucifixion, the panel on the left that of the Blessed Virgin, and that on the right of St. John the Divine. The panels were painted by Mr. C. F. M. Cleverley, and the frame under his supervision by Messrs. Powell, of Lincoln and London. The carving is by Mr. A. L. Turner, of London, from the designs of Mr. S. P. Warren, architect.

HARROGATE.—The foundation stone of the Church of St. Mark, at Harrogate, has been laid. The new church will occupy a commanding position by the side of the Leeds Road, close upon the borders of Harrogate. It has been designed by Mr. J. O. Scott, of London (diocesan architect), and will cost, without the tower, something like £12,000. It will be in the English Decorated style of Architecture. For the present only the nave, north and south aisles, and chancel will be completed; but it is hoped, within a short time, to add a tower of magnificent proportions at the west end. The nave will be 25ft. wide and about 90ft. long, and the total width of the aisles and nave will be 54ft. The feature of this portion of the building will be a fine clerestory, from which the greater part of the light will be obtained. The aisle windows, which are comparatively small, will eventually be filled with stained glass. The width of the chancel will be 23ft., and its length 38ft.; it will be lighted by two windows on either side, and a very fine east window of five lights. On the south side of the chancel will be a chapel with seating accommodation, access to which will be obtained through an arch. A corresponding arch on the north side will lead to the organ chamber. Vestry accommodation will be provided beyond the chapel. At the eastern end of the nave there will be entrances north and south, with a larger entrance to the west of the nave, and another at the west end of the church. The tower will be 105ft. high to the battlements, and owing to the elevated character of the site, will be visible for miles round. The roofs throughout will be of pitch pine, and it is intended to face the walls with stone, and to provide oak seats, choir stalls, and fittings. The main ventilation will be provided for by means of a large shaft, carried up to the top of the tower, and there will also be outlets in the clerestory and other windows, with suitable inlets for fresh air. The flowing tracery of the windows will be one of the features of the church. The building will be heated by hot-water pipes, and will be lighted by electricity.

LAUNCESTON.—The block of buildings intended for the new premises of the Launceston Liberal Association are rapidly approaching completion. Mr. Otho B. Peter is the architect, and Messrs. Broad and Werren, of Launceston, the builders. The demolition of the buildings occupying the site of the proposed Free Library will be commenced almost immediately.

LEEDS.—St. Chad's Mission Church, Hunslet, has just been opened. The preparation of the plans was intrusted to Mr. J. E. Leak, and the contract was let to Messrs. George Oakes and Sons. The building, which is of red brick, comprises two floors. On the basement is a spacious schoolroom, which will also be available for parochial purposes, and on the floor above is the church, which seats about 300

people. The entire cost, including furnishing, is £1300.

The new headquarters of the Volunteer Medical Staff Corps were opened by the Lord Mayor recently. The new premises situate in St. James Street consist of a drill hall, staff offices, orderly offices, clothing stores, and residence for staff-sergeant, with the rear portion of the site reserved for the erection of a model hospital in the near future. The new buildings have been erected from plans prepared by Mr. William Bakewell, Leeds.

LIVERPOOL.—The foundation stone of a new church institute and parochial hall at Prince's Park has been laid. The new building, which it is estimated will cost £3200, will be of a useful type, and, besides a complete suite of class-rooms, will comprise a large hall capable of holding 400 people, another hall which can be adapted for the purposes of a gymnasium and recreation-room, and other rooms and offices. In the church the old staircase leading to the pulpit has been removed, and an entirely new staircase of elegant design has been substituted. The work, chiefly of wrought-iron, has been carried out by Messrs. Worrall and Co., Byrom Street, under the supervision of the architects, Messrs. Willink and Thicknesse.

NEWPORT.—The Newport School Board Offices and Pupil Teachers' Centre, which have been erected, occupy a site next to the Charles Street Baptist Chapel. The front block, which consists of the offices of the Board, is a lofty four-storied building, having a frontage of about 60ft. to Charles Street, and with an elevation of red local pressed brick and red Mansfield stone, designed in a free treatment of English Renaissance. The buildings are provided with fireproof floors on the "Fawcett" principle, the school floors being finished with deal blocks, and the entrance hall and corridors in offices with Venetian *in situ* mosaic. Heating and ventilation have received special attention. The premises are lit by electricity. The contractors for the electric installation were Messrs. A. G. Arnold and Co., of Newport. Mr. J. Linton was the contractor for the buildings, the amount being £5000, exclusive of furnishing. The premises have been erected to the designs and under the superintendence of Messrs. Conyers, Kirby and Son, of Newport.

PORT ERROLL (Scotland).—The new hotel being erected at Port Erroll occupies a commanding site about half a mile from the railway station, and affords an extensive view of the sea and the surrounding country. It is designed in the baronial style of Architecture, and built throughout of red Peterhead granite, with Kemnay granite dressings. It consists of a large centre block of five stories, with two projecting wings at the back. The front elevation, which faces the south, extends to 118ft. in length, and presents a massive appearance. Up to the ground floor it is built of rustic ashlar, and the walls above of square snecked ashlar, with three moulded spring courses and block and space eave-course, crow-step gables, and stone dormer windows. Over the two main gables in front are two square windows set out upon moulded corbels. The distinguishing feature is a handsome tower, 98ft. high, having an embattled front, and flanked on each side with turrets. On each side of the tower, and at the ends of the front elevation, are large gabled wings, some 60ft. high, and, projecting from the face of these, are, as already stated, large bay windows, carried up two stories, and possessing handsome parapet copings. The principal entrance is under the tower, in the centre of the building. It is of ample proportions, being in the form of a semi-circular arch, 8½ft. in width, with mouldings cut in granite, and having polished pillars at the sides with Corinthian caps.

WARRINGTON.—The foundation-stone of the new Workhouse Infirmary at Warrington has been laid. The new infirmary, which is in close proximity to the workhouse, will have accommodation for 200 beds. The contractor is Mr. Davenport, of Stockton Heath, and the architect Mr. William Owen.

Under Discussion.

NEW BUILDINGS IN THE CITY.

Recently the Goldsmiths' Institute Building and Architectural Society paid a visit to a block of buildings being erected on the site of 77 and 78, Gracechurch Street, E.C. The elevation is executed in Portland stone, and designed so as to give breadth to the premises and to provide ample light to the interior. The construction throughout is fire-proof, the floors being coke-breeze cement carried by rolled steel joists and girders, which are carried by cast-iron columns and stanchions; the stairs are of patent stone, manufactured by the Impervious Stone Company, of Victoria Street. The premises are planned so as to be suitable for a bank or insurance offices, and it is intended to line the walls on the ground floor with faience. The work is being carried out under the superintendence of Mr. H. C. Clarke, the architect of Kensington Gardens Square, W. The visit terminated by passing a vote of thanks to Mr. Batchelor for conducting the party over the premises, and to Mr. Clarke for permission to view.

SIXTY YEARS OF ARCHITECTURE.

Mr. George T. Hill, in a paper entitled "Sixty Years of Architecture," read before the Glasgow Architectural Society, reviewed the phases during the Queen's reign. Speaking of the "Battle of the Styles" which raged for many years between the Classicists and Gothicists, he noted as peculiar that although Barry, a Classicist, won the Parliament House, he was forced to design it in the Gothic style, even the exact period being laid down, and although Scott, a most confirmed Gothicist, gained the Foreign Office with a Gothic design, he was compelled by Lord Palmerston to carry it out in the Classic manner. Five sketch books of Scott's contain an itinerary of his travels, without the faintest indication that he had seen anything but his favourite period of Gothic. Glasgow University was referred to as showing how suitably this architect could adapt his Gothic. Architectural journalism came into being during this reign, and in London's first professional paper, *Ruskin* wrote his early articles, sending a ray of light through the dull pedantry of the stylists. The lecturer closed by referring to improvements in draughtsmanship, with its good and evil results.

DUBLIN MASTER BUILDERS.

The annual dinner of the Dublin Master Builders' Association took place recently at Dublin. The Right Hon. Joseph M. Meade, P.C., LL.D., President of the Association, occupied the chair.—Alderman Pile (High Sheriff) submitted "The Master Builders' Association."—The President responded. He said the Association existed for the good not only for the master builders, but of their workmen. Every member of the Association expected from his workmen a fair day's work, and for that he was ready to give the full wages of the district. In dealing with the architects, they dealt with men whose knowledge of their business and whose integrity were equal to those of the members of any similar association. They had been met by the architects in the kindest way, which was in the interest of the public. As to the past year, they had no difficulties neither with their men nor with the architects.—The President proposed the "Royal Institute of Architects of Ireland and the Architectural Association of Ireland." In no city in the Empire might this toast be proposed with more appropriateness than in Dublin, for in this city and in this country they had evidence and proof of the skill and ability of the architects of old. In the city itself were two fine old cathedrals, built some centuries since, and which were monuments of what the architects of the time could do in the way of design, and the builders of the time in putting their designs into execution. In the last century some magnificent buildings were erected in Dublin, and they were splendid creations of

those days, but, to come down to the present day, they had nothing to be ashamed of. Within the last fifty years, churches, banks, private dwellings, and buildings of all classes were worthy to rank with the creations of their forefathers. The work of the architects of the present day differed from that of the past. The time had gone by when an architect might sit down and apply himself exclusively for years to one work.—Mr. W. M. Mitchell, in responding, said that but for their friends the contractors their skill, their organising power, and their appliances, it would be impossible to accomplish the great works of the present day, such as were carried out in Dublin, Belfast, Cork, and other places. He was glad to say that the architects of Ireland would soon have a home of their own in Dublin, and would have an educational curriculum worthy of the body.—Mr. Kaye Parry also responded. He said he believed the architects of Ireland had no reason to be ashamed of the position they held collectively as an institute compared with that of their brethren in England. He was not speaking of architectural works, but he believed that in no town in the United Kingdom were there architects more anxious to co-operate with each other for the benefit of the Profession than the architects of Ireland. He believed that successful results could only be achieved by friendly co-operation between the architects and builders.—Mr. R. C. Orpen also responded.

THE LANGUAGE OF LINE.

The "Language of Line" formed the subject of an address given recently by Mr. Walter Crane at the Women's Institute, Grosvenor Crescent. Mr. Crane commenced by pointing out that all were influenced by the scenes that surrounded them, and that certain continually recurring impressions left their mark. Certain lines were associated with beauty, with movement, or with other ideas, till they could almost be relied upon as a medium of speech. Line might be regarded as a symbolic language in place of speech or writing, and then evolved into either the arbitrary characters of writing, or into emblematic or allegorical art. Line might be strictly decorative like silent music, or graphic, a means for the delineation of character, of the facts of Nature, and a faithful chronicle of life and history. Mr. Crane then proceeded to show, by means of sketches, lines representing various ideas, such as the straight line for the sea, the curve for the sun rising out of it, the waving lines for water and fire, and other primitive emblems. These were all used as patterns, and were one of the great sources of ornament. Writing might be considered as a kind of degraded drawing; the arbitrary letters were derived from original hieroglyphics. Relics of this primitive art could be seen in children's drawings, and the primitive citizen, of whom Mr. Crane made a sketch with simple lines for the arms and legs, decorated many of our walls and doors. As long as the image satisfied the dramatic instinct, the child required no further details, and the indelibility of the linear language was shown by the impression made on the childish mind by pictures. He then went on to show how the idea of repose was associated with the straight line, the idea of movement with the curve, and to explain the importance of controlling boundaries to the designer, and the methods used by the draughtsman to express certain textures and surfaces. The actual handwriting of former days as seen in the beautiful Italian copy books showed how nearly the calligraphers' art touched drawing, and in this way, which had now gone out of use, writing might be made a useful half-way house to drawing. In the present day there was little danger of the Art of the draughtsman declining; and he would suggest at a time when newspapers were so largely illustrated, that some paper might dispense with the reporter, and trust entirely to the artist.

Mr. S. E. BURGESS, borough engineer, Stoke Newington, has obtained the appointment of borough surveyor to the South Shields Town Council.

Correspondence.

BULLETS IN CHURCH DOORS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In reference to your note in the current issue of the BUILDERS' JOURNAL regarding the discovery of bullets in the oak doors of St. Clement Danes, it may be of interest to your readers to know that I have found exactly the same thing in the Church of St. Mary-the-Virgin, Aldermanbury, E.C., which is now being redecorated. In this case the original oak doors had been covered over at some time with deal casing, and on the removal of this and the numerous coats of paint with which the oak itself had been treated, quite a large number of shot were found embedded in the oak. The church, as your readers will be aware, is one of Wren's, and dates from 1675; and no doubt these doors are the original ones.—I am, dear Sir, your obedient servant.

Mar. 18th. LEWIS E. G. COLLINS.

"THE DORKING 'FOUL'."

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Having seen the leader in your issue of the 16th inst., headed "The Dorking 'Foul,'" if the statements made are correct, I think the time has now come for the Profession to try and put a stop to this underneath work, which is growing more frequent in architectural competitions. It is scandalous that any committee should behave in so underneath a manner.

If the Dorking Guardians wanted a "nice pretty" building, and also said that they were not considering the health of the patients to be placed therein, and also that they should not consider how the plans were arranged, the competitors would then know how to deal with such a matter, and not spend many hours of hard work on plans that were to be thrown on one side and never be looked at by the appointed assessor.

I am surprised at any assessor even passing his opinion when he had not seen the whole of the designs submitted. I, as one of the unsuccessful competitors, do not intend to submit to such treatment if there be any way of getting justice, and shall be pleased to join others who have been so misled, to bring this forward as a test case.

I remain, yours truly,
"JUSTICE."

THE R.I.B.A. prize competition drawings, consisting of nineteen strainers and fifteen testimonies of study, were exhibited at the City Fine Art Galleries, York, last week. Mr. Geo. Kirby, curator, was in charge of the drawings, and the exhibition was organized under the auspices of the York Architectural Society.

It is stated that the Government has secured a plot of land, to the extent of 5½ acres, in Kensington, near Olympia, on which they propose to erect buildings for the use of the Savings Bank Department of the General Post Office. It is anticipated that two or three years will be required to erect suitable buildings on the acquired site.

THE Stevenson shrine at Swanston Cottage, near Edinburgh, which was the novelist's home for several years, has been rendered additionally interesting by the discovery of a curious tree carving. The date of this little memorial of Stevenson, on an old tree beside the cottage which nestles at the base of Kirkcubright, is 1874, so that he would at that time be 24 years of age.

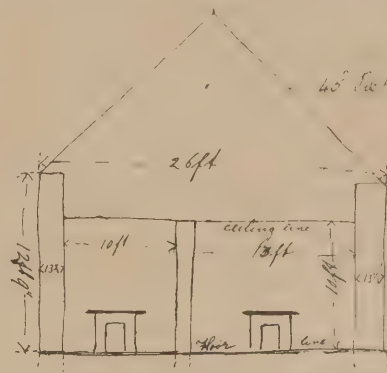
It would be a difficult matter to find a church in a more deplorable condition, from a structural point of view, than St. Barnabas, King Square, Goswell Road. No substantial renewal has taken place since 1860, and matters have reached such a pass that there is every likelihood of the building falling. It has been estimated that £1760 will be required to carry out necessary repairs.

Enquiry Department.

ROOF CONSTRUCTION.

To the Editor of THE BUILDERS' JOURNAL.

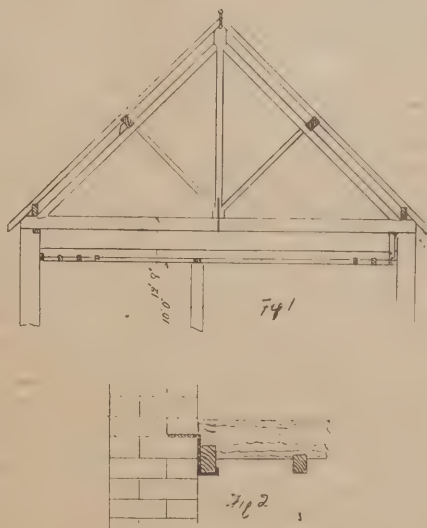
DEAR SIR,—Could you kindly inform me through your Enquiry column the cheapest way, consistent with a good and sound construction, of forming a roof and ceiling under the following circumstances, viz.:—The roof springs from walls 12ft. 9in. high from the floor-line, but the ceiling can only be 10ft.



above the floor. The centre wall, shown in the diagram accompanying, cannot possibly be carried up any higher for good reasons. Can you also tell me what the scantlings of the different timbers of the roof and ceiling should be, and what kind of roof is best?—I am, dear Sir, yours faithfully,

"PUZZLED."

We think a king-post truss roof would be the best under the circumstances mentioned, as shown in the accompanying drawings. If sound red fir is used, suitable scantlings would be—tie beam 9in. by 4½in.; principal rafters, 5in. by 4½in.; king-post out of 4½in. by 7in.; braces, 4½in. by 3in.; ridge board, 9in. by 1½in.; purlins, 8in. by 4½in.; pole plate, 8in. by 3in.; rafters, 4in. by 2in. If white fir is used, an extra ½in. in thickness will be required. The ceiling can best be arranged by fixing 2in. by 2½in. ceiling joists, 14in. apart, to 6in. by 2½in. bearers, fixed 4ft. apart as shown, to wall-plates 4½in. by 2½in. The



plates can rest either upon 3in. by ½in. W. I. straps, as shown in Fig. 2, or upon bricks corbelled out 2½in. every 3ft., or if the walls are already up, suspend the bearers from the tie beams by 4½in. by 3in. pieces halved and spiked thereto. (See right side of Fig. 1.) Spruce will do for the ceiling timbers. If the former method is adopted it would be as well to drive in a temporary strut at each end between bearer and tie beam whilst ceiling joists are nailed up, to prevent the bearer lifting. They could eventually be knocked away.

TENDENCIES IN ART.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you give me a list of the works of modern architects (for about the last thirty-five years) in and around London, which are worthy of study as examples to the tendency of Art at present and of the evolution of such tendency?—Faithfully yours,

Lewisham.

"DESIGN."

A list such as you ask for is not easy to supply. To fully understand any such tendency as this, it is surely necessary to take into account every individual example, for, whether good or bad as works of Art, they have all equal value from an historical or scientific view, as illustrating a certain tendency in human affairs, as providing data from which to generalise. The difficulty always is—particularly with regard to contemporary affairs—to say which is the main stream of tendency, and which are backwaters leading nowhere, through which no further progress is possible. It is a question also, with some people, whether during the last thirty-five years there has been any tendency at all, in any definite direction; whether we are not outside the main stream altogether, and are simply whirling round in an eddy and making no progress; whether the most careful analysis and comparison of the buildings erected during this period, would show any quality common to all, which would mark them all out as being the outcome of any particular tendency of human thought. By asking for examples of the tendency of Art, you narrow the scope of the enquiry, and put out of court the immense mass of building which is not Art. But the difficulty is to draw the line, and it is not our province to pronounce, *ex cathedra*, on this question. We take it, however, that the broadest test of Art is sincerity. It is a flag under which we may all range ourselves. If a man builds in a certain way because he believes it to be the best way, because he has convictions, his work—however poor or mistaken it may be—has at least the merit and charm of sincerity. Doubtless such work is of the greater importance to the enquirer, whether critic or student. Without any wish to be invidious, we might mention some of the buildings in London which we think every artist will admit to be the outcome of sincere convictions, and an honest attempt to do the best, and which ought not to be overlooked in any such inquiry as you propose:—Private house in Melbury Road: W. Burgess. St. Mary Magdalen, Paddington, and Law Courts: G. E. Street. St. Augustine, Kilburn, and Church, Red Lion Square: J. L. Pearson. Church in Sloane Street and church at Clerkenwell: J. D. Sedding. St. Agnes, Kennington: Geo. G. Scott. Church in Spanish Place: Leonard Stokes. New Scotland Yard; Insurance Offices, St. James' Street; Barings, Bishopsgate Street; Houses, Queen's Gate; Lowther Lodge, Kensington; Houses at Frognal, Hampstead: R. Norman Shaw. Lodges, Regent's Park; Nesfield. Houses at Kensington and Chelsea: Philip Webb. Bank, Ludgate Hill; Bechstein's, Wigmore Street; P. and O. Offices, Leadenhall Street; King's Hall, Holborn: T. E. Collcutt. Chelsea Town Hall and Polytechnic: J. M. Brydon. Conventual buildings at Hammersmith: Bentley. This list is by no means complete. There is, for example, a chapel somewhere Clapham or Wandsworth way, by Philip Webb. Perhaps some reader could give us the name and exact locality, and whether access can be obtained to it, as we understand it is of peculiar interest.

THE sum of £2500 has already been subscribed towards the cost of the memorial which is to be established in Birkenhead to the late Mr. John Laird. The memorial is to consist of a bust, to be placed in the Birkenhead Town Hall. Leading sculptors will be invited to communicate with the committee at the Town Hall, and as soon as the contract for this work has been settled, the distribution of the available balance will be determined.

Trade and Craft.

TILING AT THE BIRKBECK BANK CHAMBERS.

In referring last week to the tiling and terracotta work which has been carried out at the Birkbeck Bank Buildings, we should have credited Messrs. Doulton and Co. with having also been largely responsible for the work. This tiling—which has been much admired—has been executed, in part, by Messrs. Doulton and, in part, by Messrs. T. and R. Boote, Limited; and, in identifying the latter firm with the work, the name of Doulton should not be omitted.

A NEW DECORATIVE MATERIAL.

The "wise man" who observed that of the making of many books there was no end, would, most likely, if he had lived in this age, have made the same remark about wall decorations. The other day (writes a correspondent) I really came across something quite new. The material has the appearance of tile—but it is not tile, for if it be placed in such a light that the angle of the rays prevents you from seeing the picture or design upon a tiled surface, the new material shows up just as if the light was adjusted to its convenience. Paper it certainly is not, for you cannot tear it or make the least impression upon it. It is just glass—opaque glass—painted with enamel colours, and with the colours and the glass fused together with intense heat. There is also a backing of cement, nearly an inch thick, which gives great strength and solidity to the whole. The surface, however, is the great thing, for there is a matt, or eggshell, surface, which produces the effect to which I have referred as superior to the glazed effect of tiling as a wall decoration. It is scarcely necessary to observe that the stuff is patent. I saw several designs at the studios of the patentees, Messrs. Kayll and Co., artists in stained glass, Albion Street, Leeds, and I can testify that "Pictus Sertus," as it is called, is a very effective decoration, and well suited for friezes, panellings, &c. Some of the designs were singularly effective, and the colouring admirably maintained.

TENDERS.

AUDENSHAW.—For laying an intercepting sewer from Station-road to a point between Ashton Hill-lane and the Canal, for the District Council. Mr. J. H. Burton, surveyor, 2, Guide-lane, Hooley Hill:—
J. Smith ... £880 15 0
B. Disley ... 890 0 0
J. Chalmers ... 694 0 0
J. J. Blackburn ... 691 0 0
Muderwood Bros. ... 657 0 0
Sharples & Moore ... 655 15 0
W. J. Wilkinson ... 630 10 0
Worthington and Powall ... 627 5 0
H. Davison ... 615 10 0
T. Cooper ... £594 0 0
W. Hurst, Droylsden ... 592 6 3 1/2
T. Rowlands ... 590 0 0
Matthews and Co. ... 580 10 0
R. C. Fish ... 572 10 0
E. Cheetham ... 572 0 0
W. J. Froom ... 566 0 0
J. Farrell ... 550 19 6
[Surveyor's estimate, £698 9s. 6d.]

AUDENSHAW.—For severing a portion of Droylsden-road, for the District Council. Mr. G. H. Burton, surveyor, 2, Guide-lane, Hooley Hill:—
G. Bell ... £562 5 0
J. Cooper ... 545 8 0
Worthington and Powall ... 508 8 0
Edridge & Clarke ... 502 0 0
T. Rowlands ... 459 19 0
H. Davison ... 446 11 0
W. Hurst ... £415 15 6
H. Kinder & Son, Hooley Hill ... 393 9 6
R. Fish ... 388 4 0
J. Garrell ... 372 2 0
W. J. Groom ... 355 7 8
[Surveyor's estimate, £465 19s.]

EXETER.—For the erection of offices, St. Thomas, Exeter, for Messrs. Willey and Co. Mr. C. E. Ware, architect, Gandy-street, Exeter:—
Luscombe and Son ... £2,950
G. L. Stile and Son ... 2,845
Lewis Beame ... 2,793
George Herbert ... 2,606
Farr Brothers ... 2,600
John R. Gibbard ... 2,578
Richard F. Yeo ... 2,553
Mingo and Boone ... £2,539
Westcott, Austin, and White ... 2,524
Stephens and Son ... 2,426
W. Brealey, St. Thomas, Exeter ... 2,395
[Accepted.]

FAIRFIELD (Manchester).—For the erection of two shops on Manchester-road. Mr. J. H. Burton, architect, 2, Guide-lane, Hooley Hill:—

General Trades.
J. Whitehead ... £1,565 10 0
A. Boardman ... 1,425 0 0
Filton & Bowness ... 1,328 0 0
G. Pike ... 1,300 0 0
Wellerman Bros. ... 1,271 0 0
H. Fielding ... 1,270 0 0
E. Marshall ... £1,200 0 0
T. Dean ... 1,200 0 0
J. Robinson ... 1,195 0 0
J. Ridyard ... 1,195 0 0
W. Hurst ... 1,183 4 4
[Accepted.]

Plumber's Work.
H. Hobson ... £188 15 0
R. H. Knowlson ... 180 0 0
Burrows and Co. ... 175 0 0
G. H. Coop ... 170 0 0
E. J. Bailey ... 169 2 6
A. H. Had ... £168 0 0
J. H. Heginbottom ... 165 10 10
P. Wills ... 164 0 0
H. Rigby ... 160 0 0
G. Pybus ... 160 0 0
[Accepted.]

HANLEY (Staffs.).—For laying out land, Fenton Park Estate, for Mr. H. Warrington. Messrs. R. Scrivener and Sons, architects, Hanley:—
Tomlinson ... £2,849 0
Bagnall ... 2,471 0
Embreay ... 2,321 0
Williams ... 2,295 0
Brown and Blirton ... 1,984 16
Horobin and Co. ... £1,930 0
F. Barke, Stoke ... 1,826 0
A. Bullock ... 1,787 0
Johnson ... 1,630 0
[Accepted.]

LONDON.—For pulling down and rebuilding Nos. 3 and 5, Maddox-street, W., for Mr. H. W. Allingham. Mr. W. G. Bartlett, architect:—

	Total.
Leslie and Co. ... £5,335	£175
Kilby and Gayford ... 4,454	240
Wood and Co. ... 4,420	230
Simpson ... 4,488	143
Bywaters ... 4,227	217
Smith ... 4,159	253
Ashby Bros. ... 4,178	187
	4,365

LONDON.—For additions and alterations to the "Red Cross Tavern," Barbican. Messrs. Shoebridge and Rising, architects:—

Ashby Bros. ... £3,385	Joslyn and Young ... £3,135
Ashby and Horner ... 3,360	Edwards and Medway ... 3,113
J. Carmichael ... 3,296	Lole and Lightfoot ... 3,078
Holloway Bros. ... 3,194	W. H. Lascelles & Co. ... 3,062
LONDON.—For erecting two villas in Rydal-road, Streatham. Messrs. Hames and Darling, architects:—	
Lole and Lightfoot ... £2,369	Lorden and Sons ... £2,139
Patman and Fotheringham ... 2,300	King and Sons ... 2,116
Tyerman ... 2,232	Sanders ... 2,100
J. and C. Bowyer ... 2,200	Page ... 2,085
Whitehead and Co. ... 2,155	Ham and Son ... 1,990

LONDON.—Accepted for the erection of two new stone staircases, and other alterations to suit the requirements of the London County Council, at 138 and 140, Commercial-street, E., for the Birmingham Vinegar Brewery Company, Limited. Mr. Frank Fox and Mr. W. G. R. Bousfield, joint architects, 99, Gresham-street, E.C. Quantities supplied by Messrs. Dunk and Bousfield, Billiter-square-buildings, E.C.:—

Elkington and Co. £2,170

LONDON.—Accepted for a new top story, and additional staircases and alterations at 138 and 140, Commercial-street, for the Birmingham Vinegar Brewery Company, Limited. Mr. Frank Fox, and Mr. W. G. R. Bousfield, joint architects, 99, Gresham-street. Quantities supplied by Messrs. Dunk and Bousfield, Billiter-square-buildings, E.C.:—

LONDON.—For taking down and rebuilding No. 83, Great Titchfield-street, W. Mr. W. Hargreaves Raffles, architect, 9, Argyle-street, Regent-street, W. Quantities by Mr. C. E. Bridwell:—
J. Simpson and Son ... £4,149
W. Scrivener and Co. ... 3,859
H. C. Clifton ... 3,843
Patman and Fotheringham ... £3,821
James Carmichael ... 3,625
* Accepted with modifications.

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Arthur Webb (accepted) £1,100
LONDON.—For alterations and additions to the "Black Swan," Carter-lane, E.C., for Mr. J. G. Cathie, Messrs. Treadwell and Martin, architects, 2, Waterloo-place, S.W. Quantities by Mr. H. Williams Mellor, 19, Craven-street, Strand, W.C.:—
Minter £1,878 Lole and Lightfoot £1,596
Antill and Co. 1,37 Styles and Sons 1,563
Wright and Co. 1,740 Ashby Brothers 1,523

LONDON.—For additions and alterations at Nos. 40, 42, and 44, Boundary-lane, Walworth, for Messrs. Clog and Co. Messrs. Lawson Bros., architects:—

Coils and Sons £1,033 Eames, 135, Hill-street, Peckham* £656
Bottley, Sons, and Co. 813
W. J. Newstead 790
LONDON.—For alterations at "The Prince Albert" Hoxton, N., Messrs. Foulsham and Herbert Riches, architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:—
S. Salt £434 W. H. Brown (accepted) £350
W. Harper 400

LONDON.—For the erection of the superstructure of a fire brigade station at Battersea, for the London County Council:—

R. A. Yerbury & Sons £9,211 C. F. Kearley £7,756
LONDON.—For the erection of a fire brigade station at Lewisham, for the London County Council:—
R. A. Yerbury & Sons £17,733 Holiday and Green-Patman and Fotheringham wood £14,040
ingham 14,900 L. H. Holloway 13,800
J. N. Try 14,407 Holloway Bros. 13,600
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Stimpson and Co. 14,200

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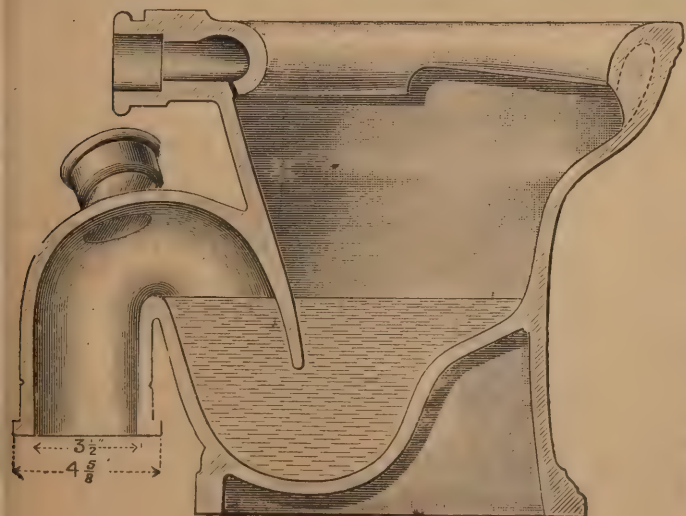
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W. Wilson	£57,210 0 0	A. Braithwaite	£24,723 0 0
J. H. Vickers	39,270 0 0	R. M. Parkinson	24,850 0 0
Bruntton & Son	38,884 0 0	Joseph Tomlin	24,450 0 0
C. R. Hall	34,263 0 0	son	24,278 0 0
Henry Vickers	29,980 0 0	Bower Bros.	24,099 8 8
B. Cooke & Co.	27,900 0 0	J. D. Nowell and	23,618 17 0
John Greenwood	26,500 0 0	Sons	20,750 0 0
Geo. Lawson	25,690 0 0	J. A. Ewart	
Parker & Sharp	25,207 0 0	A. Kellett, Man-	
H. H. Barry	25,000 0 0	chester*	

* Accepted.

OMAGH.—Accepted for the erection of business premises, Market-street, for Messrs. Graham, Son and Wilson. Mr. W. Barker, architect, 7, Bridge-street, Omagh:—

Chas. McCrory, Omagh ... £1,760

PORTLAND.—For the execution of water supply works, Upwey, for the District Council. Mr. E. J. Elford, C.E., Council's Offices, New Road, Portland, Quantities by Mr. J. H. Blizard, Castle Lane, Southampton:—

Cooke and Co. ... £39,924 12 0 Bostel, Sons, and W. Jones ... 28,710 0 0 Peattie, 73, Ebury-street, London* £23,570 18 0

* Accepted.

PAULTON.—For the erection of Wesleyan Schools. Mr. W. P. Bird, architect, Midsomer Norton, Somerset:—

E. T. Hatherley ... £2,247 0 H. E. Perkins ... £1,765 0

R. C. Cook ... 2,180 0 J. Gait and Son ... 1,700 0

I. Ford and Sons ... 2,025 0 W. A. Catley ... 1,670 0

J. Child ... 1,964 0 V. Keeling, Tims-

H. A. Shepard ... 1,892 6 bury (accepted) ... 1,515 0

[Architect's estimate, £1,525.]

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QUANTON (Bucks).—For the erection of new schools and offices, for the managers Quantities supplied. Messrs. W. F. Taylor and Son, architects, Aylesbury and Thame:—

Webster and Cannon	£1,758 0	J. Holland	£1,722 10
King and Cannon		C. Crook	1,669 0
Quanton*	1,747 0		* Accepted.

REDBRIDGE (Southampton).—For new factories, offices, &c., at Redbridge, near Southampton, for The Schultze Gunpowder Company, Limited. Messrs. Lemon and Blizard, architects and surveyors, Castle-lane, Southampton:—

H. Stevens & Co.	£9,376 0 0	Playfair & Toole	£9,136 0 0
H. Cawte	9,847 16 7	Thomas Rashley,	
Jenkins and Son	9,836 0 0	Lymington*	9,088 0 0

* Provisionally accepted.

[Architect's protecting estimate, £10,227.]

REIGATE.—For the erection of house in Manor Road, Reigate, for Mr. G. Taylor. Mr. C. E. Salmon, architect, Bell Street, Reigate:—

W. Bagaley and Sons	£1,724	A. B. Apter	£1,560
R. Killick	1,687	J. J. Carrick	1,470
W. J. Wells	1,654	C. Nightingale & Sons*	1,335

* Accepted.

RICHMOND.—For alterations to 61 and 62, George-street, for The London and South Western Banking Company. Messrs. Edmeston and Gabriel, architects, 42, Old Broad-street:—

Lawrance and Sons	£2,067	Speechley and Smith	£1,798
Brooking	1,897		* Accepted.

SANDERSTEAD.—For erecting a villa residence for Mr. F. Howard. Messrs. Treadwell and Martin, architects, 2, Waterloo-place, S.W. Quantities by Mr. H. Williams

Mellor, 19, Craven-street, Strand, W.C.:—	
Goulder and Son	£1,774
Grady	1,597
Minter	1,567

Heinemann and Brown 1,440

Somerford and Son 1,364

SANDERSTEAD.—For erecting a villa residence for Mr. G. Young. Messrs. Treadwell and Martin, architects, 2, Waterloo-place, S.W. Quantities by Mr. H. Williams

Mellor, 19, Craven-street, Strand, W.C.:—	
Goulder and Son	£2,513
Grady	2,319
Minter	2,250

Heinemann and Brown 2,040

Somerford and Son 1,948

SANDERSTEAD.—For erecting a villa residence for Mr. H. W. Higham. Messrs. Treadwell and Martin, architects, 2, Waterloo-place, S.W. Quantities by Mr. H. Williams

Mellor, 19, Craven-street, Strand, W.C.:—	
Goulder and Son	£1,848
Grady	1,693
Minter	1,629

Heinemann and Brown 1,507

Somerford and Son 1,446

SUTTON (Surrey).—For the erection of five shops at High Street, Sutton, Surrey. Messrs. R. M. Chart and Son, architects, Croydon:—

G. Jackson	£4,033	E. J. Burnand	£4,272
Hanscomb and Smith	4,476	H. Bacon	3,595
D. Barker	4,451	W. Ledbury, Banstead*	3,250

* Accepted.

TREDEGAR (Mon.).—For the erection of County School buildings, for the managers. Mr. W. S. Williams, architect, Tredegar:—

T. S. Foster	£2,740 0 0	W. Warne	£2,474 12 7
Mainwaring and	2,595 15 0	Rees Edwards	2,395 0 0
Davies	2,573 8 0	D. Vaughan,	
W. Williams	2,553 0 0	Tredegar*	2,388 0 0

* Accepted.

WALTHAMSTOW.—For building schools at Brunner-road, Walthamstow. Messrs. J. and K. Cutts, architects:—

Morris	£2,467	Shurmer	£2,132
Porter	2,299	Bentley	2,125
Lawrence	2,215	Scott	1,997
Fuller	2,181		

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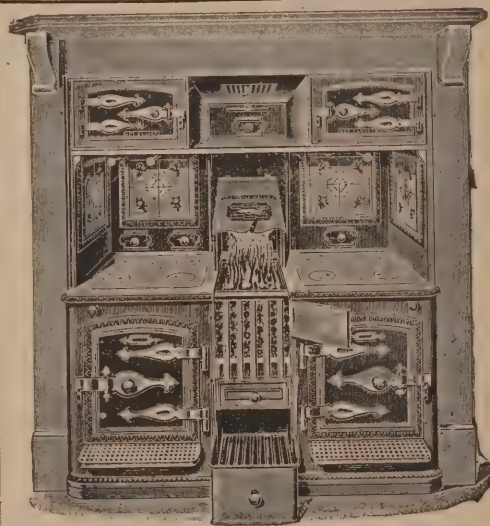
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COMPLETE.

Catalogues on Application.



An Architectural Causerie.

Cosmopolitanism in Art.

ON several occasions lately there has appeared in the Press a rumour to the effect that certain well-known artists are contemplating the establishment in London of a cosmopolitan Art exhibition, where may be seen, year by year, the best productions of foreign countries. It is to be hoped that this rumour is true, and that, should it ever be carried out, a proper regard will be paid to the claims of Architecture. An exhibition, by means of which English architects could keep in touch with what is going on in other countries, would have a great educational value. As it is, the occasional publication of a foreign design in the professional journals is about the only source of information for the great majority of us. It is to be feared that we are too insular—too provincial, as Mathew Arnold might say—not enough in the centre of things, and the worst of it is that some of us boast of it. How little do we know, and how little do we care about, what is being done by our contemporaries in other countries, compared with the interest that other artists take in the work of their foreign comrades? It is to our advantage to make ourselves acquainted with the best, and it stands to reason that all of this best cannot be produced here. It might be as well not to enquire too closely how much or how little: the result might not be flattering to our national vanity. There ought to be some organised method of keeping the best of foreign work always before us, and not only foreign work, but foreign ideas and opinions. A little candid foreign criticism, too, on our own performances might not do us any harm; it might make some of us open our eyes. Why have we not correspondents in all the foreign Art centres to keep us informed as to the latest tendency, the newest idea; to give us an insight into other ways of looking at things, other habits of thought? We are apt to attach too much importance to local and national characteristics, to accentuate the points of difference rather than the points of agreement, perhaps because they are easier to see. We want more sympathy and mutual agreement between the artists of various countries. Differences of climate and material will always provide us with local characteristics; there is no need to wilfully accentuate them. The time has gone by for different nations to pride themselves on their peculiarities and little eccentricities, and sneer at the rest of the world as "only foreigners." Facilities of communication and travel are rapidly bringing all civilized peoples into one general confederation of manners and morals; local peculiarities are fast disappearing. The points of agreement between the educated and travelled gentlemen of the different nations of Europe are far greater than the points of difference. These may involve some loss of the picturesque, but if it tends to a general advance towards a higher level we cannot very well regret it. It is probable that if our Architecture had more in common with that of foreign countries, it would more

truly express the tastes and ideas of the more cultivated men among us—because of their cosmopolitan education. Each man for himself, each nation for itself, may be a practical motto for practical affairs, but it is no good in Art. What we want is a confederacy of the artists of every nation and tongue for the advancement of Art. A. R. J.

Prometheus Discovered!

THE discovery of Prometheus is reported! The interesting intelligence was brought to light within the past few days, in a paper read before the Royal Geographical Society by Mr. Richard Mitchell, who returned to England a few months ago, after a tour through Asiatic Russia. The story told by Mr. Mitchell—than whom, we are told, no traveller is held to be more reliable—is astounding. It was whilst surveying the eastern side of Mount Caucasus that the traveller saw through his telescope what appeared to be a naked figure on a rock near

noticed that his body was covered with scars, but at first I was not sure whether he was alive or dead. I shouted and waved my knapsack in the air. The captive turned his head in my direction, thus enabling me to get a full view of his face, which was that of a young man, though horribly drawn, emaciated and rigid with exposure. His hair hung down over his shoulders like a mantle, and it was weighted with long icicles. I shouted again. The captive uttered a faint moan. I could see the tears stream down his cheeks, freezing as they fell. He seemed to be trying to speak, but at that moment my attention was distracted to an enormous golden eagle—larger than any I have ever seen—which had appeared in the sky and was wheeling slowly over the summit. In a few moments the creature swooped down and began tearing at the wretched man's body. The sight sickened me so that I had to turn my head away, cursing my impotence to interfere. When I looked again the bird was already soaring high in the air. In the failing light I could see that the captive had fainted and



PROMETHEUS.

BY O. WHEATLEY.

the mountain's summit. Mr. Mitchell communicated his strange telescopic discovery to the innkeeper when he reached Tzeva, a village in the valley; and, on being pressed, his host said the figure must have been that of the white captive. From the peasants in the district Mr. Mitchell learnt that the figure had been there for many years—in fact, they thought it had been there since the days of the Creation. Mr. Mitchell determined to ascend Mount Caucasus, but his appeal to the neighbouring peasants to accompany him only brought out their superstitious awe. Mr. Mitchell went alone, eventually reaching a point about 300ft. below the mountain's summit, near where he had first seen the curious figure. Says Mr. Mitchell:—"The sun was low in the West, but I could see clearly what was indeed a naked man chained by the wrists and ankles to an upstanding rock. I

that blood was flowing from a long wound in his side." A pretty story!—but that it is fictitious, or the result of an illusion, such as trouble men in very high altitudes, are theories which are rigorously held to be untenable, and the only question is the identification of the strange captive on Mount Caucasus with Prometheus. We know that Prometheus, by order of Jupiter, was chained to a rock at the summit of this mountain; that his punishment was to last for 30,000 years; that on every day during this period he was to be preyed upon by Jupiter's own bird. But against this it is contended that Prometheus was rescued by Hercules thirty years after sentence was passed, a theory which in turn is disputed. Many writers since the Middle Ages have put forward the theory that the gods of Greece and Rome are not dead, and now is announced the discovery of Prometheus! H. C.

The "Wayfarer" on Architecture.

It is generally admitted, by the wise men of this age, that growing old has its drawbacks, but here are—so the "Wayfarer" thinks—compensations. "Things we pass over carelessly in youth" he says, "you learn to appreciate in some way or another, wholly or in part, that were previously ignored as being of no importance. . . . In the first reading of some great novelist, descriptive passages are missed, this or that overlooked, in the hurry to arrive at the winding-up of the tale; there is a scampering through the pages in order to learn whether the hero and heroine lived happy ever afterwards, or if Bloodstained Bill was hung for his crimes, or married the Indian maiden named Sierwatha. . . . It is somewhat the same in the appreciation of fine Architecture. On the first visit to a cathedral, you stroll round in a casual and superior sort of way, and out through the western porch, with the idea of having 'done' the building. . . . A year or two passes, a gray hair or so finds its way among your fair locks, and then another journey is paid to the building. A revelation comes this time with surprising force; beauties hitherto hidden show themselves, the march round is more leisurely, the eye dwells with something of joy upon the long shafts, the pointed arches, and the wonderful proportions; the picture is seen as beauty for its own sake, certain impressions remain enabling you to call up the scene at your pleasure. If of a retrospective nature you will wonder why you don't worry about the time of the train's departure as on the first occasion. It is the passing of the years, life is seen less frantically, animate and inanimate things close, and at hand are regarded with a more favourable gaze. In youth you move too quickly to appreciate the beauties; your vision is ahead. . . . Three or four years pass, perhaps, before you again travel in that direction, the grey hairs have multiplied in number, you are also subject to slight attacks of lumbago, but the building continues to unfold wonders. To beauty of proportion, to pleasant curves and sturdy masses, is added a new joy—a sense of intimacy with the men who wrought and placed the stones and carved the foliage; it sets the mind roving back to the times and people who raised the structure—from then forward it becomes to you a record—a fragment of past life told with symbols on stone, metal, and wood. From the ugly devil that forms a gargoyle and the saint of ascetic mien over the western portals, to the plain and fretted stonework, springs a tale of the days gone by—they are links in the chain that connects the past with the present, and prevents you from feeling lonely as you run the course. "Architecture," shouts the "Wayfarer," raising his voice rudely, "is not 'Art for Art's sake,' but man's joyfulness, playfulness, and sadness in materials, rooted for centuries to the soil." G. LL. M.

OIL PAINTINGS, water colours, drawings, and sculpture, representing a gross weight of sixty tons, have been despatched from Australia for the coming exhibition of Antipodean Art at the Grafton Galleries.

THE foundation-stone has been laid of the new hall and club in connection with St. George's Cathedral (Roman Catholic), Southwark. The new structure will be very substantial, with a frontage on Westminster Bridge Road.

SIR WM. PRIESTLEY, the member for St. Andrew's University, has undertaken to defray the cost of cleaning and redecorating the magnificent ceiling of the library in the University of Edinburgh. Its neglected state was mentioned in the House of Commons, but the University Court then pleaded that they had no funds available.

GLASS-BLOWING AND WORKING.

By T. BOLAS, F.C.S., F.I.C.

THIS book is intended to give the amateur such full instruction in the art of glass-blowing as to enable him in the quiet of his own room to produce almost any small object he may desire to make, and contains the substance of demonstration lectures given by the author under the auspices of the Middlesex County Council. It is a model of what such a manual should be—clearly expressed, with every doubtful or difficult point elucidated by explanatory diagrams, and with the examples graduated in difficulty, so that the amateur who cannot successfully pursue the art by its direction and assistance must be either very dull or exceptionally clumsy. Not only are the various processes of manipulating the glass described, but directions are given, by following which the worker may make tools and appliances for himself which the experience of the author has gradually developed from the requirements of the processes, and which are, therefore, better than the ordinary trade appliances produced for sale. The practical notes commence with a chapter on the blow-pipe, in which various criteria are enumerated, whereby that condition of the flame which produces the best results may be recognised, and two or three convenient forms of jets are described. Next come some paragraphs on the subject of oil lamps of quaint shapes, designed to allow of turning the pieces of glass which are being operated upon easily, and then the important matter of the bellows is fully treated. After describing various useful minor tools and appliances (most of which may be made by the worker himself, if he has any talent for metal work), Mr. Bolas attacks the subject of the material, giving the composition of various kinds of white glass, ranging from the hardest silica and Bohemian glass to that which is softest and most easily fusible, used for glass-painting and enamelling. This chapter also contains a description of the forms in which the material may most easily be procured, with various cautions for the protection of the unwary purchaser. Then follow instructions for working the glass, commencing with the simple cutting of tubes, and proceeding through various more difficult processes (the articles described being principally for laboratory use) until the learner is conducted to the production of such difficult work as glass syringes without packing, and internal air traps, and other sealings. Modelling on the bulb and the production of spiral and other lines and threads enclosed within the glass are thoroughly explained, and a little further on modes of colouring glass and of producing "aventurine" are the subject of a chapter, so that the amateur if he have taste and perseverance may produce on a small scale glass vases resembling the productions of Murano. There is a chapter upon the making of scales of degrees and engraving them, in which several modes of performing the work are described, and another on the phenomena of devitrification and the changes which age produces in the material of both white and coloured glass, and the book ends with a short chapter on the manufacture of glass in small quantities, and with a list of books, easily accessible, from which the amateur may gain further information. The manual is written by a man who evidently knows his subject through and through, and whose object has been to place his knowledge at the disposal of his fellows; and, although everyone may not be able to quite agree with the author's enthusiastic expressions in his first chapter on the great educational value of the practice of the craft, there can be little doubt that success in the working of glass by the amateur must be accompanied by the acquirement of rapid perception, delicacy of touch, and the power of deciding quickly which course among several is best to follow.

S. S. G.

["Glass Blowing and Glass Working, for Amateurs, Experimentalists, and Technicians." By Thomas Bolas, F.C.S., F.I.C. Price 2s. Dawbarn and Ward, Limited 6, Farringdon Avenue, E.C.]

THE WHEEL CROSSES OF CORNWALL.

By F. A. GINEVER.

IN a lecture on "The Wheel Crosses of Cornwall," Mr. F. A. Ginever pointed out that the wheel-headed cross was divisible into three parts—the base, the column, and the capital. Very commonly the base was omitted, and sometimes the shaft nearly or entirely disappeared. The essential feature was the circular head at the top. This was composed of two elements which we may see isolated in the Madron men-an-tol monuments, the double post and a circle. These double posts or equal slabs could be combined into four symmetrical figures:—(1) The Tau or T cross, or crux commissa, like a capital T, which is also seen in its inverted form; (2) the crux immissa has two forms—a Greek cross of equal arms, and (3) a Latin cross of unequal arms; (4) the crux decussata, or St. Andrew's cross, having the arms of equal length, but not at right angles to each other. All these were compounded with the circle. Obviously, if they were to fit the circle, they would be the Greek cross and the St. Andrew's; the other forms when connected with the circle were either placed above or below. The distinction of the disc from the column was emphasised when the column was furnished with lateral projections at the neck as at Gwithian.

THE IDEA OF THE HEAD

as representing a poised wheel or disc was illustrated by the brass resting on a column found in the catacombs, and in a tablet of the fourth century found in the Church of St. Demetrius Salonica, where the sacred wheel was alone in a frame without any column. Strangely the neck projections observed in the Perranporth cross, which seemed originally intended to support the crossed disc, were confined to Cornwall. They might be intended to represent an Abacus, as they appeared to do in the two crosses of Basil and Michaelstow, or the pillar might be taken to represent the T cross, the lateral projections being a rudiment of the cross piece, and the disc represent the circle or oval which surmounts Egyptian crosses. The figure sculpture of wheel crosses or Cornish crosses generally was both rare and rude. Unlike certain crosses which contain whole stories in stone, Cornish crosses had but one figure—that of Christ, and that generally of the most primitive execution possible. Of course, the intractable material of which the crosses were made had to be taken into consideration when criticising the sculpture. The work was in shallow relief, rarely exceeding a projection of 1½ in. The ornamentation was of great interest, both as showing the state of Art and as furnishing a clue to the ages to which they belong.

THE COINS OF CONSTANTINE

opened up the main question as to how the cross was first introduced. On one side was a monogram. It contained two letters, one the shape of a capital P, and the other the shape of a capital X. These two letters were called by many Christians, who did not know their real signification, the pax. The two letters looking respectively like X and P are, in reality, two Greek letters, Ch and R. The fluctuations between the monogram and the ordinary Greek cross were well exhibited in Cornish crosses. The monogram was introduced in its integrity into Britain as shown in the church at Phillack. Only ten of these monogram crosses have been found in the country, and of these Cornwall possesses five. There are three crosses, each with a halo around the head, and clothed with a sleeve tunic, at St. Buryan, St. Paul, and Sancreed. The Phillack Churchyard cross is likewise clothed in a tunic. There are altogether fourteen of these clothed figures. Pendarvis cross is an interesting boy cross, the figure with his straddling legs being absurdly vigorous and lively. The Institute cross is another boy figure somewhat similar. The Trevu cross is a boy figure with short arms and the shortest of legs. It is different from the other two crosses in being incised, not in relief.

PICTURESQUE CITIES

AND

Monasteries of the North of Spain.

I. BARCELONA.

By F. HAMILTON JACKSON.

(Continued from page 120.)

THE most important church, after the cathedral, is dedicated to Our Lady of the Sea—S. Maria del Mar—in which the body of S. Eulalia rested from 873 till 1339. The present building was erected between the years 1329 and 1383, as inscriptions near one of the doors record. It is one of the few churches built entirely by the working classes, the porters even contributing to the fund, in memory of which fact there are to be seen on the door of the principal façade among the pierced metal quatrefoils with which it is covered, two small figures carrying stone or wood. The name of the architect is as usual unknown. In 1379 a fire consumed the vestry, altar, choir, and a portion of the roof, but by the aid of Pedro IV. it was repaired and completed in 1383. The rose window of the west front is fine; it was almost destroyed by an earthquake in 1428, but was repaired. The interior is divided into three naves by lofty and elegant shafted piers bearing lancet arches; the choir is behind the presbytery, a very unusual arrangement in Spanish churches, and a gilded royal pew is placed opposite the great organ. The altar mayor has a poor retablo carved by a sculptor who was accustomed to ornamenting the poops of galleys. The windows are filled with very fine glass, as is common in Barcelona, and being rather lighter than usual, interior details are tolerably well seen. The church has four doors, one of which opens into the Plaza de Born, now used as a market, where many curious products of sea and land may be seen; which, in ancient days, was the place for tournaments.

The Calle de Moncada runs up from the corner of this Plaza, and contains several fine houses of the fourteenth and fifteenth centuries. S. Maria del Pino is also a good specimen of Gothic, with fine stained windows. It was built in 1380, and consists of a noble single nave of seven bays, the side chapels being placed between the piers of the flying buttresses which support the vaulting. It has a fine portal and belfry tower. Its name is derived from a tradition, according to which an image of the Virgin was found in the trunk of a pine tree, and a pine tree, blessed on Palm Sunday, is every year placed on the highest point of the belfry still in remembrance of the tradition. On the altars of the chapels of San Pancracio and San Clemente Jews had a right to take oath on the decalogue in any suit with a Christian.

In SS. Justo y Pastor is a chapel (that of S. Felio) at the altar of which the Jews had the same privilege. This church also consists of a single nave, and was built in 1345, that which it replaced having been the earliest Christian church in Barcelona. The nave is 43ft. 6in. in the clear, and 130ft. long, with apsidal end of five sides, and produces an imposing effect. Here, too, is good stained glass, as in nearly all the Barcelonese churches, making the interior rather dark until the eye becomes accustomed to the difference between the extreme brightness of the light outside and the comparative gloom, but it is never possible to see details of paintings sufficiently to examine them critically, the general effect being of a mysterious richness through which the various decorative details half appear, filling the eye while they are difficult to disentangle one from the other. This mysterious richness reaches its acme in the cathedral, which is most impressive through it, although I do not mean to suggest that the design and proportion are not as great factors in producing that impressiveness.

The cloister of S. Ana is pretty, filled with plants and bushes, and with a well in the centre, of which a pleasant glimpse may be had through the entrance doorway. The church

has been so much modernised as to have lost interest; it was built in imitation of that of the Holy Sepulchre by the patriarch of Jerusalem. In the church of S. Miguel is a blue and white mosaic pavement said to have belonged to a temple of Neptune. The font appears to be part of an antique candelabrum. This church was altered in 1002. The principal doorway is a curious mixture of Romanesque and Saracenic styles. The church of El Belem on the Rambla is covered with rich marbles inside with the worst effect; it contains the sword of Ignatius Loyola which he offered to the Virgin on the altar at Montserrat; and there is also a crucifix in this building which attracts a great deal of devotion and is ablaze with candles.

Two very interesting churches have been referred to as extra-mural, S. Pablo del Campo, and S. Pedro de las Puellas. The first is a Romanesque structure built in 913 by Wilfred the 2nd, though restored in 1117 by one Guiterdo and his wife. It is cruciform, with three parallel apses, and an octagonal vault on pendentives over the crossing, nave and transepts being covered with a wagon vault. The west front is purely Byzantine, except for the circular window. The cloister is very quaint, the arches being quite Arabian, while the coupled columns and their capitals

are Romanesque; on two sides of the cloister these Arabian-looking arches have three foils, and on the other two, five, with great buttresses in the centre. The other church was so called, because it was destined for a nunnery. It was built about 980 by Count Sunario, after the earlier church (erected by Louis le Debonnaire), was destroyed by Al Mansour. At that time it is said that the nuns disfigured themselves by cutting off their noses, to avoid the shame of being taken to the Balearic harems. The sculpture of the capitals is quite Eastern in character, but very little of the ancient church is left unaltered.

In Barcelona the public scribe still plies his trade, adding to it that of registry office keeper for servants and boarding houses, and accountant. His offices may be seen on the Rambla. This thoroughfare was once a stream, "la Riera den Malla," which bounded the city on the west side, running just outside the wall. "Rambla" (from the Arabic "Raml," a sandy heap) means a river bed, which in Spain, being often dry in summer, is used as a road. Beneath this street runs a great sewer large enough for a man on horseback to ride in, which is said to be Roman, but is more likely to date from the time when the river was covered over, so as to provide for the escape of storm waters. Just at the com-



DOORWAY OF S. MIGUEL, BARCELONA.

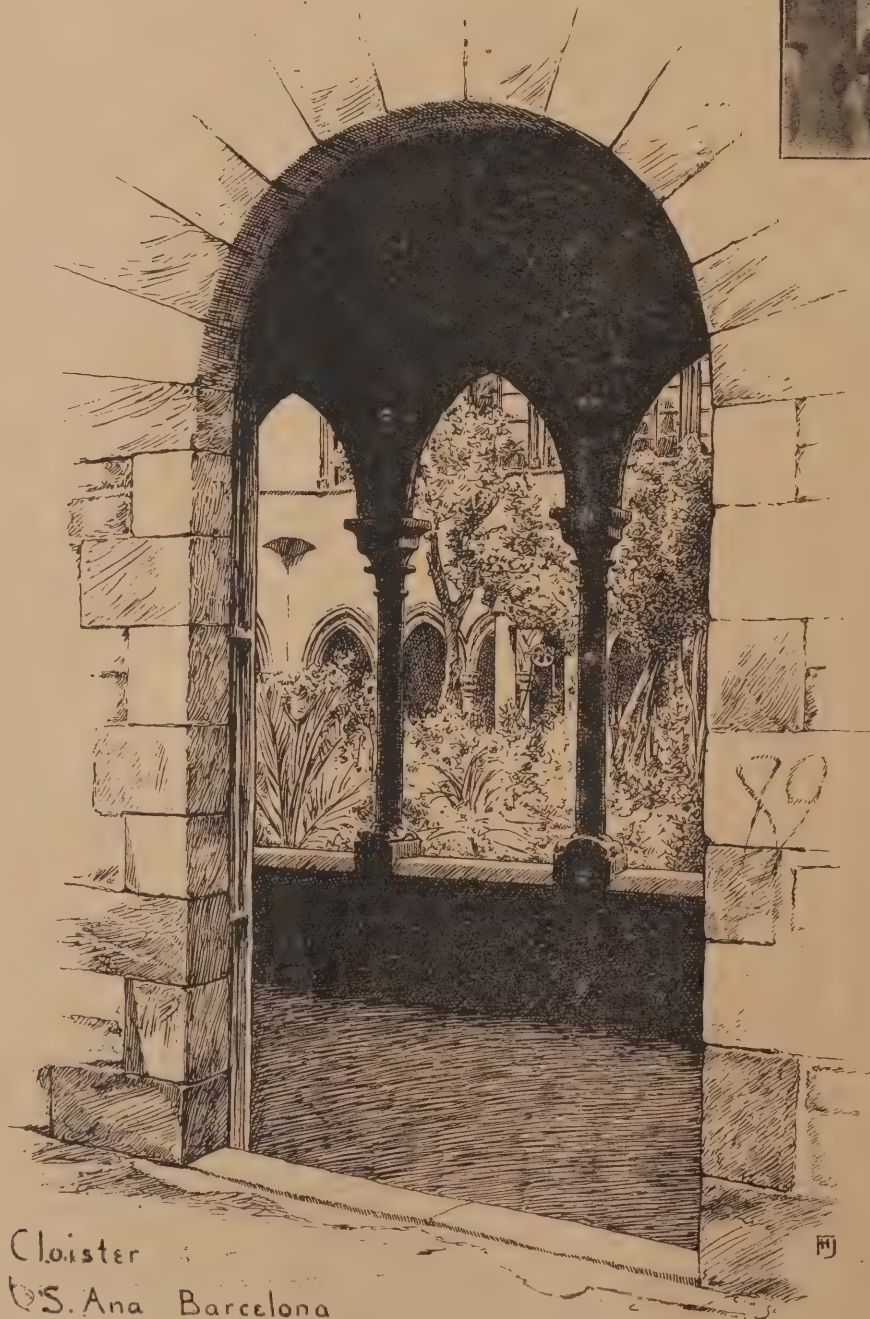
mencement of the Rambla are the Atarazanas, or arsenal, which were constructed in 1243 by James the Conqueror. They are now used, in a very much altered form, as barracks for infantry and cavalry. They originally extended along the whole sea front as far as the Plaza del Palacio, and could contain, securely sheltered, twenty-five large galleys at a time. It is interesting to note that this word (which means dockyard in Arabic) is the root of the word arsenal, through the Catalan "Dressana" and Spanish "Dársena." Above them rises the hill on which is placed the Castle of Monjuich, a name which may be derived either from the Roman Mons Jovis, or the mediæval Mons. Judaicus, the Jews having had their cemetery between it and the city. Outside the cathedral, in the Plaza Nueva, are the only remains of the old walls now to be seen, a gate flanked by two round towers, which still remain.

The Lonja, or Exchange, in the Plaza del Palacio down by the sea, contains a fine Gothic hall of 1383, but nothing else has escaped the hand of the "beautifier," who began his work in 1770. He was a French architect, and his work was not approved by the municipality, so it no longer exists, but he was powerful for destruction! The present building was erected by a man named Juan

Soler, and contains, besides the Exchange, an Art school and picture gallery—mostly filled with the works of Catalan artists, among which is a brilliant Fortuny, representing the battle of Tetuan. Most of the public buildings have been subjected to the same ordeal, the Casa de la Diputacion at the hands of Pedro Blay in 1609. The Casa Consistorial, too, has a Doric façade, though it still retains a portion of the original Gothic in the Calle Ciudad, near to SS. Justo y Pastor. This consists of a roundheaded doorway with very long voussours, surrounded by an oggee crocketed hood-mould, which bears upon its summit a figure of S. Michael under a canopy with large wings of bronze. The wall is pierced by several windows with coupled lights and foiled heads, and terminates in a pierced parapet sup-



S. MARIA DEL MAR, BARCELONA.



Cloister

S. Ana Barcelona

SKETCHED BY F. HAMILTON JACKSON.

ported by trefoiled arcading. The moulding surrounding the door turns in a curious manner at right angles—following the angle of the wall—before terminating. This part of the building dates from 1373. The patio also is fine. The Casade la Diputacion on the other side of the Plaza contains a courtyard dating from the end of the fourteenth century—a very elegant Gothic work; and also a façade in the Calle del Obispo in the same style with a pierced parapet of beautiful design, below which gargoyles protrude. On the other side of the building are some ajimez windows, the slender shafts of which look very pretty and delicate. In the courtyard is a staircase to the state rooms, which is much admired. Within may be seen some rich artesonado ceilings, and good but worn tapestries; also a series of portraits of Kings of Spain, commencing with Ataulfo, which are earlier than the sixteenth century. The Jews' quarter was just here; it extended from the Plaza de la Constitucion to the Calle del Call. In 1891 it was sacked and destroyed by the mob under the instigation of San Vicente Ferrer. The streets around the quays have picturesque arcading on the ground floors, made use of by the shopkeepers for the display of their wares, and useful also for protection from the fierce rays of the sun. In the Calle de la Merced is a very beautiful doorway to the church of S. Miguel, with a group in the tympanum showing the victory over the dragon, and with statuettes of angels in niches at the sides. This resembles that of S. Jaime in the Calle Don Alfonso Trece, figured by Street, but appears to me more beautiful.

In the hospital of Santa Cruz is a balcony and stair a good deal like that in the Casa de la Diputacion; also some good ironwork, and one of the finest knockers in Barcelona.

There are still some of the abortions of the exhibition left in the Park grounds. A fountain, consisting of the figure of a lady in modern costume standing on a pedestal and holding aloft a parasol, from the ends of the ribs of which the water streams! And an erection, supposed to represent Montserrat, made of concrete, and in the style of the worst tea-garden ornamentation. Also several less objectionable fountains, based apparently on

Sèvres or Dresden china. But the city is charming in many ways to those who pay but a short visit, though the habits of the people apparently make no allowance for the necessity of sleep, the streets being full until 2 a.m., and market traffic commencing before 4 a.m.

I will conclude with two historical facts, showing the character and reputation of Barcelona and its people. When Columbus was received here by Ferdinand and Isabella after his return from America the first time, the jealousy of the maritime supremacy of Castile was so great that no record of the fact was made in the archives either of the city or of the kingdom of Aragon! Nor does the "Dietaria" of 1492 say anything about it.

Kings on entering Barcelona for the first time were obliged to take oath to defend and never to transgress the popular laws (fueros) of the city. The councils (Jura) used to take place in different parts of it, and before the high altar of the cathedral. When Charles V. visited it in 1519 he wished to be received not as King of Spain, but as one of the former Counts. "For," he said, "I would rather be Count of Barcelona than King of the Romans."

A new porch has been erected on the south side of St. Martin's Church, Leicester. The porch was designed by the late Mr. J. L. Pearson, and around it are statues of John Wycliffe, Archbishop Magee, St. Guthlac, and others.

A new residential hotel is to be built in Leicester Square at a cost of £40,000; another to be called the Tudor, on the sites of 79, 81, 83, 85, 87, and 89, Oxford Street, and 1, 2, 3, 4, and 5, Dean Street, at a cost of £25,000; the Carlton Hotel, on a portion of the site of Her Majesty's Theatre, whilst the Marlborough Hotel, at the corner of Bury and Ryder Streets is to be enlarged.

THE NEW GOVERNMENT OFFICES.

HOW THEY ARE TO BE BUILT.

THE new public buildings, for which Parliament has been asked to vote £2,550,000, may be divided into three distinct groups:— (1) The new Government offices in Parliament Street; (2) The completion of the Science and Art Museum at South Kensington, and (3) The new Post Office Savings Bank. As soon as the money is available, work will be commenced on all the buildings. All the plans and designs are in an advanced state of preparation, and before next Christmas the work of building will probably have been begun. An entirely new method is to be followed with regard to the new Government buildings in Parliament Street. As Mr. Akers-Douglas announced, the Government does not intend to invite architects to compete for the designs of the new buildings. It has been decided to allow the officials of the Board of Works to design the interior of the new offices. The Board of Works, it is believed, regards the internal construction of the General Post Office North and the new Post Office, at Liverpool, as pretty nearly perfect as regards convenience, and will probably follow them somewhat closely when

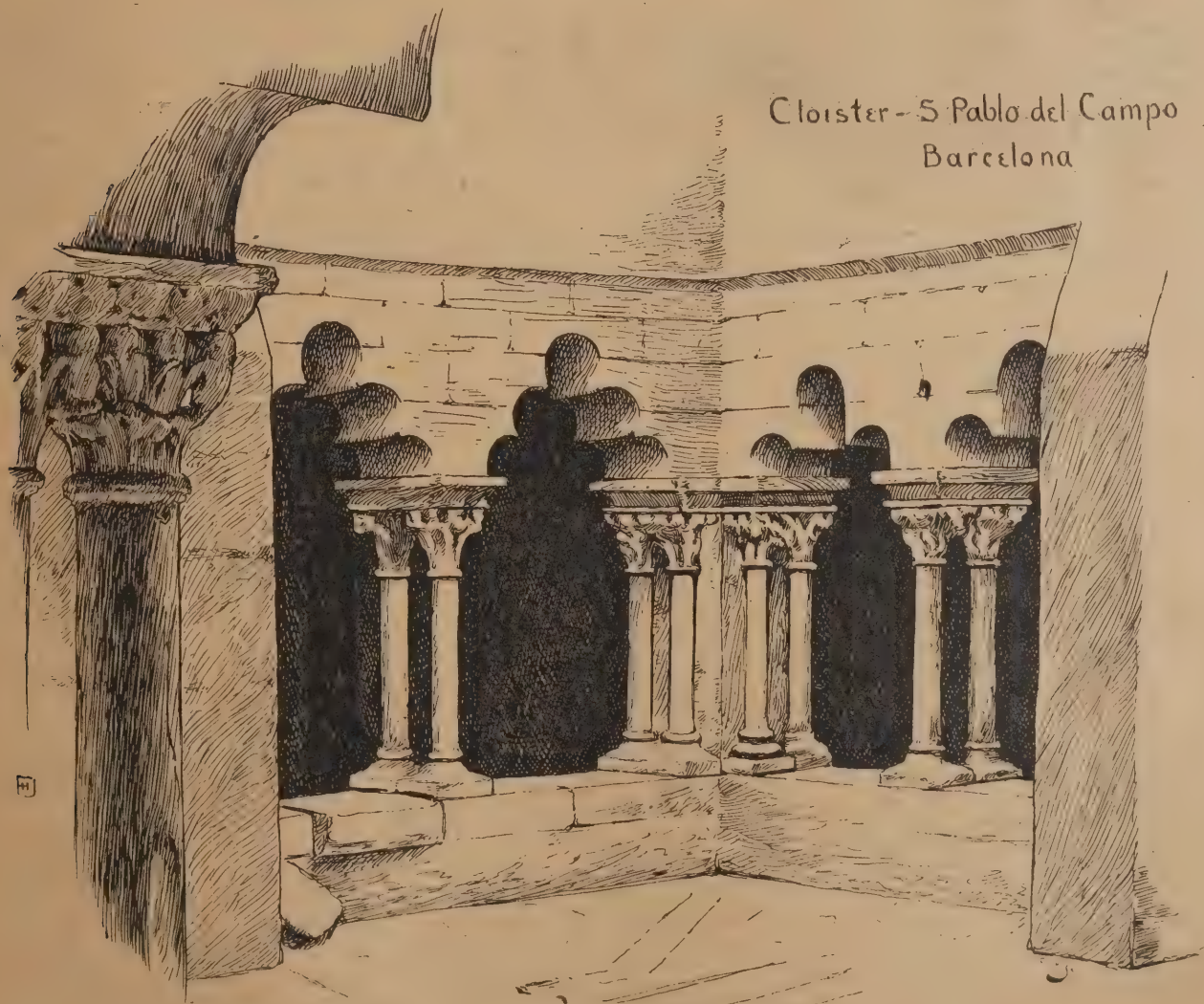
DESIGNING THE NEW INTERIORS.

When this has been done, and only then, the Government will appoint an architect, who will be asked to design the shell of the buildings. It is proposed that the new buildings shall be made to harmonise with the offices which already stand in Parliament Street, and build them of Portland stone like that which was used in the Houses of Parliament. It will be seen that the Government do not intend to

allow the architect whom they may select a very free hand. The whole of the work will in reality be under the control and direction of the Board of Works. The money for the purchase of the sites of the new offices was voted in 1895 and 1897. The acquiring of the land, however, has been somewhat delayed, owing to the numerous arbitrations which have been necessary in order to decide upon a fair sum. The demolition of the houses in Parliament Street has not been accomplished as quickly as had been hoped. Curiously enough, Parliament itself is to a large extent to blame for this delay. Ever since it reassembled the police have not allowed carts to approach the buildings after noon. This regulation has practically confined

THE WORK OF DEMOLITION

to the early morning hours. The buildings which will be constructed under the sole control of the Board of Works are the War Office, the Board of Trade, the Education Department, and the extension of the Local Government Board. The completion of the Admiralty building has already been designed and contracted for, and will be proceeded with at once. The present proposal for the construction of the Science and Art buildings at South Kensington differs considerably from the scheme of 1891. The new buildings will be constructed on the designs of Mr. A. Webb, which were approved for the scheme of 1891, but will have to be considerably modified in order to meet the present proposals. Instead of two buildings east and west of Exhibition Road, the Government now intend to provide all the necessary extra accommodation in one building to the east of that road. The additional room will be obtained by removing the temporary buildings which are at present situated in the grounds of the Museum. By this means it is hoped to find ample room for the requirements of both Science and Arts Depart-



Cloister - S Pablo del Campo
Barcelona

SKETCHED BY F. HAMILTON JACKSON.

ments for some time to come. Should the new building prove inadequate, the utilisation of the Imperial Institute for the science section is a proposal which will probably be seriously considered. If that building had been available at the present moment, it would have obviated the necessity of erecting so large an extension in Cromwell Road as is at present proposed. Those, however, who have the control of the Institute are still hoping against hope that something may happen which will make it popular. By the proposed removal of the Post Office Savings Bank, that institution will probably be able to effect the saving of a large sum of money. The Bank will sell their present valuable building to the Post Office, and, as it is to obtain a grant of £300,000 towards its new home in West Kensington, there will probably be a round sum to be placed to the credit of the Bank. The follow-

ACETYLENE GAS.*

By C. T. MARSHALL.

ACETYLENE gas, although as a practical illuminant a thing of to-day, possesses a history, and a not uninteresting one. Its discovery has by many been ascribed to Sir Humphrey Davy, and, although this is not the case, he cannot be said to be entirely disconnected with it, as it was in following up one of his great relative's discoveries—the production of the metal potassium—that Edmund Davy, in the year 1836, while experimenting with a process for the production of this metal, found a black residue in the retort, which, like potassium, decomposed water, but instead of the gas given off being pure hydrogen, it was found to be a compound of that gas with

henceforth stood known to the world as Acetylene. On October 17th, 1892, Macquenne announced to the Academy of Sciences that he had made barium carbide by heating barium carbonate, magnesium powder, and charcoal in an iron bottle, and that on treatment with water or other hydroxylated compound, it yielded Acetylene gas, and on January 19th, 1893, Mr. Travers announced to the Chemical Society that he had also made carbide of calcium by heating a mixture of sodium, calcium chloride, and powdered gas carbon—the resulting mixture giving 16 degrees of calcium carbide. The discovery of a method of making carbide of calcium cheaply, and in larger quantities, was, as previously stated, the result of an accident. Mr. Thomas Leopold Willson, a Canadian chemist, had devised a process for the production of aluminium by the use of an electric furnace, but found himself



COTTAGES AT SCARBOROUGH. W. E. BARRY, ARCHITECT.

ing table shows the sums which are to be expended on the new public buildings:

PARLIAMENT STREET—	
War Office	£475,000
Board of Trade	} £600,000
Education Department	
Local Government Board	
(extension)	
Admiralty (additional extensions)	£275,000
SOUTH KENSINGTON—	
Science and Art	£800,000
WEST KENSINGTON—	
Post Office Savings Bank	£300,000

Total £2,450,000

In addition to these sums for buildings, £100,000 is required to complete the purchase of the Parliament Street site, bringing up the total paid for that site to £245,000. For the purchase of Carrington House, the site of the new War Office, £500,000 was voted in 1897.

MR. JOHN WARD, assistant borough surveyor of Sheffield, has been appointed borough surveyor for Derby.

carbon, two volumes of hydrogen combining with two volumes of carbon to form a hydro-carbon, differing in composition from any hydro-carbon then known, which we now know as Acetylene. In 1862 Wohler made carbide of calcium by fusing an alloy of zinc and calcium with carbon, and ascertained that it decomposed in contact with water, forming calcic hydrate and Acetylene. In the same year, the great French chemist, Berthello made

A SERIES OF INTERESTING EXPERIMENTS

upon this gas. He found that, as the electric arc passed between carbon electrodes in an atmosphere of hydrogen, direct combination took place between these elements, and Acetylene was thus synthetically produced. He also found that when the vapours or gases of more complex hydro-carbons came to be passed through heated tubes this same gas made its appearance in small quantities. In addition to carrying out these experiments, he took upon himself the responsibility of giving it a name, and the newest of the hydro-carbons

* Extracts from a paper read before the Northern Architectural Association.

debarred from carrying out work on aluminium owing to certain patent rights. Whilst attempting to utilise his electric furnace for obtaining the metal calcium by reducing lime with finely-powdered charcoal, he found that at the

TEMPERATURE OF THE ELECTRIC ARC

an interaction took place, which resulted in the evolution of carbon monoxide, and left behind a fused mass which solidified to an extremely hard semi-crystalline body. The experiment was a failure. Anything but pleased with the result of his experiment, Mr. Willson threw the mass into the stream, which drove the turbine. The substance thus thrown so lightly aside did not behave with the modesty of unconscious merit; on the contrary, it made itself both seen and felt in the most unmistakable manner, by causing a violent effervescence in the water, and giving off an odour that demanded the undivided attention of all those who came within reasonable distance of it. This remarkable action was not without its result. Some more of the substance was at once made, and examined chemically, when it was found to be what is

known as carbide of calcium, and upon being brought into contact with water it gave off large volumes of Acetylene gas. In describing Mr. Willson's discovery of the formation of carbide of calcium in the electric furnace, I must not overlook the claims of M. Moissau. As to which of these two gentlemen was the first to notice the accidental

FORMATION OF THE CARBIDE

in his electric furnace, I am, for obvious reasons, not prepared to make any rash assertions; we can merely take the assertions of the rival claimants, and according to them each discoverer was an undoubtedly good first. But, when it comes to the announcement of these discoveries, we are on firmer ground, and these seem to leave no reasonable doubt as to the validity of Mr. Willson's claim. Carbide of calcium is a hard, greyish substance, containing forty parts by weight of calcium, combined with twenty-four parts by weight of carbon. It has a specific gravity of 2.26, and the theoretical yield of 11b. when saturated with water is 5889 cubic feet of gas. In practice the average yield of good commercial carbide is about five cubic feet per pound. The evolution of Acetylene gas upon water being brought into contact with carbide of calcium is due to the chemical affinities of hydrogen and carbon and of oxygen and calcium. Immediately upon contact a double reaction takes place. The oxygen of the water combines with the calcium of the calcic carbide to form lime, while the hydrogen of the water combines with the carbon of the calcic carbide to form Acetylene. Acetylene is a gaseous compound, composed of twenty-four parts by weight of carbon with two parts by weight of hydrogen, having a specific gravity, as compared with air of 0.91. When burnt it gives a flame of intense brilliance, the rays being almost identical with those of the sun. It is far superior as an illuminant to any other known gas, five cubic feet of it giving an illumination of 240 candle-power, as compared with 16 candle-power given by the same quantity of coal gas. It has an intensely penetrating odour, which somewhat resembles garlic, its strong smell being a very great safeguard in its use, as the smallest leakage would be at once detected. Indeed, so pungent is this odour that it would be practically impossible to go into a room which contained any dangerous quantity of the gas. Although Acetylene has of itself so recently become a practical illuminant, it has long been recognised as

THE SOURCE OF LUMINOSITY

in all hydro-carbon flames. We have recently had many alarmist statements as to the safety or otherwise of Acetylene gas, and I now propose to deal with it from the point of view of its explosibility, poisonous nature, heat of the flame, and products of combustion, as compared with coal gas. It is explosive over a slightly wider range than coal gas. Mixtures of air and Acetylene commence to be explosive when containing about 5 per cent. of Acetylene, while the proportion of coal gas in a mixture of air and coal gas required to make an explosion is about 8 per cent. These figures appear to favour coal gas in the proportion of eight to five, but further inquiry nullifies this advantage. In an escape caused by a tap being left on, the average coal gas burner will pass at least 5 cubic feet of gas per hour, during which time an Acetylene burner would only pass $\frac{1}{2}$ ft. gas, while if the escape were caused by a hole in the pipe, the amount of gas escaping would depend upon the specific gravity of the gas; the specific gravity of coal gas is .4, that of Acetylene is .9, thus the proportionate amount of gas escaping under similar conditions would be two (2) volumes of Acetylene to 3 of coal gas. It will thus be seen that while, if the escape is caused by a trap being left on, the comparison is overwhelmingly

IN FAVOUR OF ACETYLENE,

if it is caused by a hole in the pipe the two are practically equal. This is without taking into consideration the odour of Acetylene, which, as previously mentioned, makes no mistake about

giving warning of any escape. An Acetylene gas flame only gives off one-fifth of the heat given off by a coal gas flame. For the generation of Acetylene gas all that is requisite is to bring carbide of calcium into contact with water. This must obviously be done in one of two methods, either the carbide may be dropped into water, or water may be allowed to flow into the carbide. Both methods have their advantages and disadvantages. Taking the first principle, that of dropping the carbide into water, from a chemical point of view, it is undoubtedly the best, but from a mechanical point of view it has serious limitations; by dropping the carbide of calcium in small pieces into a comparatively large volume of water, there is practically no rise in the temperature, the decomposition is perfect, and having to bubble through the water the gas is condensed, washed, and freed from impurities. Its main disadvantage from a mechanical point of view is the practical impossibility of making, at a moderate cost, a small automatic generator that will work in a satisfactory manner. The difficulties are of a purely technical nature, and I do not propose to go into them here. Mr. Dargue considers that very large apparatus should be made on this principle, and that they should not be automatic in action. The second principle, that of allowing the water to flow to the carbide, is, for a very obvious reason, that most generally adopted, the reason being its adaptability to

THE CONSTRUCTION OF GENERATORS

of a moderate size, designed to work automatically by allowing the water to flow by gravity to the vessel containing the carbide of calcium, and the cutting off of the supply of the same, either by the action of a valve closed by the rising of the gasholder, when, a certain amount of gas having been made, causes it to rise above a certain point, or by the back pressure of the gas when a certain amount of gas has been made. As a result of the automatic operation of these generators, a large storage capacity is not required in connection with them; they can therefore be made of a comparatively small size, and at a moderate cost. It is for this reason practically certain that most generators will be made on this principle, and it is necessary that we should give our very careful attention to any faults that there may be in this principle, and to the methods in which these faults may be overcome. The conditions given rise to by this method of generator, which necessitate special precautions being taken to overcome them (and this is especially the case in those machines where the water is sprayed on to the carbide), are that the heat developed during the reaction is sufficient to polymerise some of the Acetylene into liquid products of a tar-like nature, and that by decomposing all the impurities present in the carbide, the gas is rendered extremely impure. These impurities, if not dealt with, are likely to find their way into the pipes, and to cause stoppages in the same. The conditions can be overcome by (1) enclosing the carbide container in a water jacket, (2) by passing the gas through water or some other purifying agent. As I have previously stated, there are two principles on which generators working on this principle can be designed. They may be made on what

I call the "gasholder principle," having the supply of water regulated by a valve opened and closed by the falling and rising of the gasholder, or upon what I call the "back pressure of the gas principle," in which there is no cut off between the water and the carbide container, the water being driven back by the pressure of the gas after a certain amount has been made.

KEYSTONES.

The foundation-stone of the Missions to Seamen Church, in Poplar, has been laid.

The amount of the contract for constructing a railway from Llanishen to Castell Coch, undertaken by Messrs. Monk and Newell, of Liverpool, is £61,345.

No lover of Art will hear without sorrow of the untimely death of Mr. Aubrey Beardsley. He was, always excepting Mr. Whistler, the most original artist of his time.

The Birmingham City Council has adopted a report from the Public Works Committee for the purchase of land on the left side of Cherry Street, to widen that thoroughfare by 6ft. 6in., at a total cost of £12,300.

A LOCAL GOVERNMENT BOARD inquiry has been held at Leicester, with respect to the application of the Town Council for sanction to borrow £19,700 for the purchase of property required for street improvements.

THIRTEEN sets of plans for the proposed new Board School for the Intack district of Blackburn have been sent in by local architects to the Blackburn School Board, and the drawings are now in the hands of the assessors.

A LOCAL GOVERNMENT BOARD inquiry has been held at Kingstown, Ireland, with reference to the application of the Township Commissioners for a loan of £6600 for the purpose of erecting municipal buildings, £1000 for sewers, and £2000 for concreting footpaths and providing kerbing.

The tomb of the late Duke of Clarence in the Albert Chapel at Windsor Castle is now being completed. A recumbent statue of the deceased Prince is to be placed upon the lid of the beautiful Mexican onyx sarcophagus containing the coffin, and the Royal burial-place will be surrounded by handsome bronze railings.

At the Halifax Town Hall a Board of Trade inquiry has been held respecting an application by the Corporation to borrow an additional sum of £20,000 for tramways purposes—namely 10,200 yards of land, at 3s. 6d. per yard, for a car depot at Highroad Well; the erection of sheds, £3250; fourteen cars, at £190 each; and fourteen trucks, £6300.

THE Wesleyan General Chapel Committee have just sanctioned proposals for the erection of thirteen new chapels in various parts of the country, at an estimated expenditure of £38,980. This brings up the total to twenty-six within the past two months. One of the proposed new chapels is at Brentford circuit, Twickenham being the site selected. Another new chapel, estimated to cost £9153, is to be built at Weston-super-Mare. It will seat 1000 persons. A sum of £5364 is to be expended on alterations.



GROUND PLAN.



1ST FLOOR PLAN.

COTTAGES AT SCARBOROUGH. W. E. BARRY, ARCHITECT.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
March 30th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

IN connection with the new building programme of the Government, it is stated that the services of Sir John Taylor, the chief surveyor of the Office of Works, who in the ordinary course would retire very soon under the age regulations, will be retained for some years. It is understood that Sir John will officially be superannuated, but he will continue to act as expert adviser to the First Commissioner, and in the capacity will receive a salary which, added to the amount of his pension, will equal his present emoluments.

THE extension of the Record Office, by which the front portion of the imposing structure in Chancery Lane is connected with the huge block in the rear, and the site of the old Rolls House and Chapel completely covered, is now nearly finished. The work has been carried out by Messrs. Foster, of Rugby, under the supervision of Mr. Dyer, of her Majesty's Office of Works. With a slight exception, it is in complete harmony, architecturally, with the rest of the structure, the only difference being that three large windows on the south side mark the large apartments in which as many of the features of the old Rolls Chapel as possible are to be preserved. This will form a museum to which the public will be admitted without the restrictions that have naturally to be observed in other parts of the building.

THE scheme for the provision of a new Art Gallery for Bradford, to replace the present inadequate arrangements at the Free Library in Darley Street, has been before the Bradford Free Library Committee. The proposal is for that Committee to join the Markets and Fairs Committee in the new extensions of the markets in Rawson Square, the ground floor premises to be devoted to markets purposes, and the upper to the Art Gallery. By this means the Library Committee would avoid exorbitant outlay on site, and by apportionment of cost it is thought the scheme may be brought within the narrow limits of that Committee's spending powers.

IN a letter to the Times, on the subject of the restoration of the old parish church of Bow, which is practically in ruins and has been closed for some months, the Bishop of Stepney says:—"It is possible that some may have been deterred from contributing by the fear that in the restoration of the church some injury might be done to its beauty. It will be a satisfaction to these to know that representatives of the National Trust, the Society for the Preservation of Ancient Buildings, and the Committee for the Survey of Greater London have accepted my invitation to serve upon the Restoration Committee, and that the plan of repair is approved by the whole committee. To carry out these plans, a sum of £3700 will be required, towards which we have at present £900 in cash or in

promises. It will be observed that, by restricting ourselves to repair and abandoning the idea of enlargement, we have saved a considerable portion of the £5000 mentioned in our original letter, though we thereby, of course, endanger grants from societies given on condition of enlargement. The moment we obtain an adequate proportion of the £2800 still needed we shall begin at once to repair the old church, which is crumbling away more every day that it is left."

THE prizes offered by the Corporation of London for the best designs for a medal to commemorate Her Majesty's Diamond Jubilee have just been awarded (first prize, £20) to Messrs. Spink and Son, Gracechurch Street and Piccadilly; (second prize, £15) to Mr. J. Gamble, 24, Rich Terrace, South Kensington; and (third prize, £10) to Mr. A. B. Sykes, 16, Perry Hill, Catford. Sixteen designs were sent in, and fourteen accepted for competition.

No decision has yet been arrived at as to the successor of the late Mr. Howe in the clerkship of the works at Windsor Castle. There is very little doubt, however, that the principal nomination to be shortly made will be Mr. Nutt, who, so far as such a position exists, has served as the assistant clerk. Mr. Nutt is officially known as the draughtsman to the Office of Works, which is under the direction of the First Commissioner and is a Civil Service appointment, the maintenance of the exterior fabric of Windsor Castle being a public concern. Mr. Nutt has also held hitherto a simultaneous appointment as surveyor to St. George's Chapel, and as such has derived further emoluments from the Dean and Chapter. He has, moreover, done a great deal of work for the Princess Henry—as, for example, in designing some portions of the Battenberg Memorial Chapel at Whippingham.

AN attempt is being made to raise funds for the restoration of the tower of St. John de Sepulchre, Norwich. The church is situated just within the gates of Ber Street, and, according to history, is one of the twenty-five churches in the city which were erected by Edward the Confessor, but the real founder was probably William de Beaufort, who was then bishop of the diocese, and resided at Thetford before the removal of the See to Norwich. The church has undergone many changes, and nothing now remains of the old church of 800 years ago. To give an idea of what it was like, a glance must be made at the Church of St. Julian, situated in King Street close by, which has remained almost unaltered to the present day, especially the ground plan and round tower. The church tower is one of the landmarks of the neighbourhood. With one exception it is the highest point in Norwich, but it is badly cracked almost from summit to base. Of its peal of five bells, two are broken and the remainder require refitting. A new bell frame is also badly needed. A sum of about £1000 is required.

NONE but a French hand guided by instinctive French taste could have effected so charming a decorative arrangement as the Hanover Gallery now displays. Mons. Lachenal is very well known in Paris, both by private appreciation and by the greater publicity of exhibitions. He has done well to give Londoners a chance of seeing his art in ceramic, for form, modelling, colour, texture, and ornament are not of ordinary class, and, save in a few instances, have no hint of that triviality often associated with French objects of this kind. Texture is no mean aid to beauty, and in these pieces it is sometimes like the skin of a fruit, at others portions of a vessel will be highly glazed and parts left with dead surface. Colour is fine and of infinite variety, while in some of the multi-coloured vases, jars, plaques, cachepots, &c., there is a delightful suggestion of fleeting lustre. Very restful are the many instances of self-colour in tones of jade green, while other shades are of marl grey, toad tone, or of the loveliest bright blue, sanguine, and

yellow, for which no descriptive names can be found. Ducks, drakes, the Gallic cock, &c., are used often and with vivacity, but this appeals to fine tastes less than do the more ideal creations or those handsome objects in which proportion and glorious colour, either positive or neutral, or combined, are wedded. There are some vivacious busts, and a few sculptures by Madrassi, Masseau, &c., which Mons. Lachenal has translated into ceramics.

THE mosaic which was recently discovered at Boscoreale has been acquired by the Museum at Naples for £2000. It is a picture of no ordinary character. The central subject is surrounded with a beautiful garland of flowers and fruits, and represents four persons seated at a semicircular bench, with a background of an acropolis and a city. The savants at Berlin and at Naples are agreed that it probably represents Aristotle, Pythagoras, Plato, and Socrates; while behind them are two philosophers of less distinction.

THE scheme for connecting western and central Denmark by a bridge over the Little Belt is so far matured that it will shortly be laid before the Legislature of Denmark. The only difficulty seems to be that of expense, the estimated cost of the undertaking being £650,000. The distance to be spanned is about 4500ft., and the bridge, if made, would be 130ft. in breadth. It would be 130ft. above sea-level, supported by groups of four or six iron pillars from 800ft. to 1000ft. apart, and standing on foundations carried to a depth of 20ft. or 30ft. below the sea-bed. Four years would be required to complete the work.

NORWICH Cathedral must evidently be added to the list of crumbling and decaying edifices. The Dean recently gave a pitiable description of the present state of things. He said: "I fear that crowds of people who worship here never give themselves the trouble to see the state which the beautiful cloisters are in. They are literally falling to pieces. Approach the square by ascending the steps, and you will see their pitiable condition. I dare not face the repair without £3000; and in my life I have no hope whatever of that sum. The Dean and Chapter also desire to unflake the nave, and make it as is the choir and the transepts, comely and beautiful. Are there no churchmen who will undertake this necessary and stately piece of work?" Restorers have been busy about the cathedral for years past.

THERE is a delightful collection at the Goupil Gallery just now, with variety enough to suit the most catholic taste—work by the Barbizon School, by the modern Dutchman, by M. Cazin, Mr. Watts, Mr. Clausen, Mr. Swan, and Mr. Peppercorn, and with one wonderful group of pictures by Mr. Whistler. Here you will find again the "Valparaiso," that haunting poem of the night; and here, too, you will see another nocturne, "Blue and Gold," the serene and solemn impression of the hour "when the evening mist clothes the riverside with poetry as with a veil . . . and the whole city hangs in the heavens, and fairyland is before us." And in Mr. Whistler's own words, we have also the clue to the loveliness of "In the Studio," for the simple arrangement of grey and roses is full of "the painter's poetry" of which he writes: "The amazing invention that shall have put form and colour into such perfect harmony that exquisiteness is the result." There are two other small pictures by Mr. Whistler, "The Barber's Shop" and "Resting," each as exquisite in its way. It is round this little group that the interest of the show centres; but there is hardly a picture hung that is not worth looking at. Very lovely is Corot's "Marissel," with the white church on its little hill and the avenue of tall, graceful trees leading up to it; and the pastoral, "Under the Trees," by Mauve; and the girl "At the Well," by Matthew Marius, painted, we should say, some years since, when his dreaming on canvas took more substantial form, more definite expression. Altogether, here is a collection to remind you—and the

reminder is needed—that modern Art is not all degraded to the level of the tedious trivialities and petty little eccentricities that go to the making of the average Bond Street show.

EAST LONDON will have an attractive show in the Whitechapel Picture Exhibition this Easter. Canon Barnett has succeeded in borrowing about fifty of the works by Millais which have been at Burlington House. Her Majesty the Queen lends the portrait of her Royal Highness Princess Marie of Edinburgh; and the Duke of Westminster, Mr. Alexander Henderson, Mr. C. J. Wertheimer, and Messrs. Angew are among the owners who are allowing their treasures to be transferred to St. Jude's schools. The Exhibition will close on April 17.

WHAT is known as the "Brook Hospital Scandal" was again discussed at the meeting of the Metropolitan Asylums Board recently. It will be recollected that the expenditure on the new building largely exceeded the estimate. The committee had recommended the payment of the contractors' claims as finally adjusted by the architect, and the renewal of an application to the Local Government Board for an order authorising the further expenditure on loan, in respect of the erection, equipment, &c., of the hospital, of the sum of £100,000 in lieu of the sum of £75,000 applied for on October 10, 1896. To this Mr. J. H. Brass had moved as an amendment: "That the report be referred back to the committee for them to report as to the cause of the extra expenditure, as to the several contractors not executing the works in accordance with the sealed contracts, as to the power of the architect to order additional work without the authority of the board, and as to whether the certificates of the architect for such works are, or are not *ultra vires*."—In continuing the adjourned debate on the subject, Mr. J. H. Lile attributed blame to the committee in allowing the architect to incur an extra expenditure of nearly £39,000 without reference to the committee, but said he did not think there was any evidence to show that if the whole of the items of extra expenditure had been brought before the committee the expense could have been in any way reduced. Although a very much larger sum had been expended on the hospital than was originally contemplated, the rate-payers had good value for their money. He hoped, however, they would not conduct matters in such a loose manner with the architect in future, and would not sanction even the expenditure of £50 without the knowledge of the committee.—After further debate the amendment was lost by 44 votes to 5, and the recommendations of the committee were agreed to.—Mr. John Lobb then proposed, "That the whole matter be referred to the Local Government Board to ascertain whether section 14 of the Metropolitan Poor Law Act, 1867, has been contravened by Mr. Brown in supplying bricks used in the erection of the Brook Hospital."—This having been seconded, Mr. J. Willmott said a dishonest attack had been made upon Mr. Brown (a member of the Board). The bricks manufactured by Mr. Brown were purchased by merchants and builders all over the country, and, amongst others, by a firm of merchants in London, who supplied a comparatively small number to the builders of the Brook Hospital. Mr. Brown had no control over the merchants or builders, and the only way in which he could prevent such an occurrence was to give up his business entirely.—Upon a show of hands the motion was lost.

THE equestrian statue of Lord Roberts, which has been unveiled at Calcutta, cost about £4000, the metal from which it was cast being obtained from fourteen guns presented to the Government for the purpose. Both the statue and pedestal were designed by Mr. Harry Bates, A.R.A. The allegorical figures at each end of the pedestal are symbolical of "Courage" and "Fortitude." The friezes encircling the pedestal represent the march from Kabul to Kandahar.

In the House of Commons on the 21st inst., Mr. Akers-Douglas, replying to Mr. Bartley (Islington), said: Mr. Aston Webb, who in 1891 prepared the plans for additions to the South Kensington Museum, will be instructed to draw up revised plans for the extended scheme now proposed. Hon. members shall have an opportunity of inspecting them before they are finally accepted.—Lord Balcarras subsequently asked the First Commissioner of Works whether, in connection with his statement about new buildings for the South Kensington Museum, it is to be understood that the science collections now housed on the west side of Exhibition Road are to be moved to the new buildings to be erected on the east side of Exhibition Road; whether it is also proposed to move the Indian and Oriental collections to the new galleries; and what is proposed to be done with the large extent of land upon the west side of Exhibition Road and the buildings now occupied by the science collections.—Mr. Akers-Douglas said, in reply: With regard to the first and second paragraphs of the question of my noble friend, the answer is in the affirmative. With regard to the third paragraph, I can only say that it is a matter which will receive the attention of the Government when the new buildings it is proposed to erect on the eastern side of the road approach completion.

A CORRESPONDENT writes:—"I see various proposals to restore old churches in Cornwall. Permit me to say that I trust due regard will be taken, in the process of restoration, for the old records within such churches. A church is not only a place of worship, although that is its *raison d'être*, but it is also a storehouse of historical data, more or less valuable to the historian and genealogist. Sometimes when the floors are relaid, stones with inscriptions are removed or altogether cast aside. This ought not to be done. When a church floor, covered with old memorial stones, is to be tiled, or otherwise relaid, a plan of the church ought in every case to be drawn, the stones in question numbered on the plan, and the inscriptions copied in accordance with such numbers. The plan and records should then be preserved as carefully as the registers. Where possible all stones with inscriptions should be themselves preserved, and in the original places. But it would be much to be able to refer inquirers, or descendants of those interred, to an accurate plan."

THE latest addition to the vast collection of Art treasures in the private apartments at Windsor Castle is a life-size bust in white marble of Prince Henry of Battenberg, by the Countess Gleichen, daughter of the late Prince Victor of Hohenlohe-Langenburg. This bust has been placed on a pedestal at the upper end of the corridor. The Queen intends to place a replica in one of the niches in the Prince Consort's mausoleum at Frogmore, which are intended to be receptacles for memorials of deceased members of the Royal family.

THE Dresden Gallery has latterly been developing in a new direction. It has shared with the Louvre and our own building in Trafalgar Square the distinction of being amongst European Galleries remarkable for the Catholicity of its collection. In Holland, the pictures at Amsterdam, the Hague, and Haarlem are almost exclusively Dutch. In Italy, the galleries in Perugia, Venice, and the Vatican are almost exclusively of Italian masters; but Dresden is strong in most schools—Italian, German, French, and Dutch. Where it is weakest is in our own painters, but a recent purchase of an example of Raeburn may mark the trend of taste in a new direction.

THE referee's award in the action between James Miller (plaintiff) and the London County Council (defendants), remitted by order of Mr. Justice Hawkins from the Queen's Bench Division to Mr. Herbert Thomas Steward, architect and surveyor, of 45, Parliament Street, has been received. Litigation in the case has been pending since 1895. The plaintiff in the action is the owner of a number of

small cottages in Miller's Avenue, Stoke Newington Road. At the rear of these cottages and on a much lower level was a building which had been decreed as dangerous by the County Council officials. The case for the plaintiff was that the County Council sent its workmen from the Works Department and altogether demolished the alleged dangerous structure. In doing so they removed a portion of a wall which had hitherto held up the higher land at its back, and plaintiff's cottages were then in danger of falling down. To make the damage good the plaintiff had to build a new wall, and he called on the County Council to recompense him for the cost he had been put to. As that body declined to pay he brought an action for damages.—The Referee awarded the plaintiff £17 10s., and directed the defendants to pay the plaintiff his costs of the law action, including the cost of the reference and also the referee's fees and the cost of his award. The fees and the cost of the award were assessed at £65 9s. 6d. There were several counsel engaged in the case and twenty-nine witnesses—some of whom were leading surveyors—so that the costs of the litigation must be very heavy.

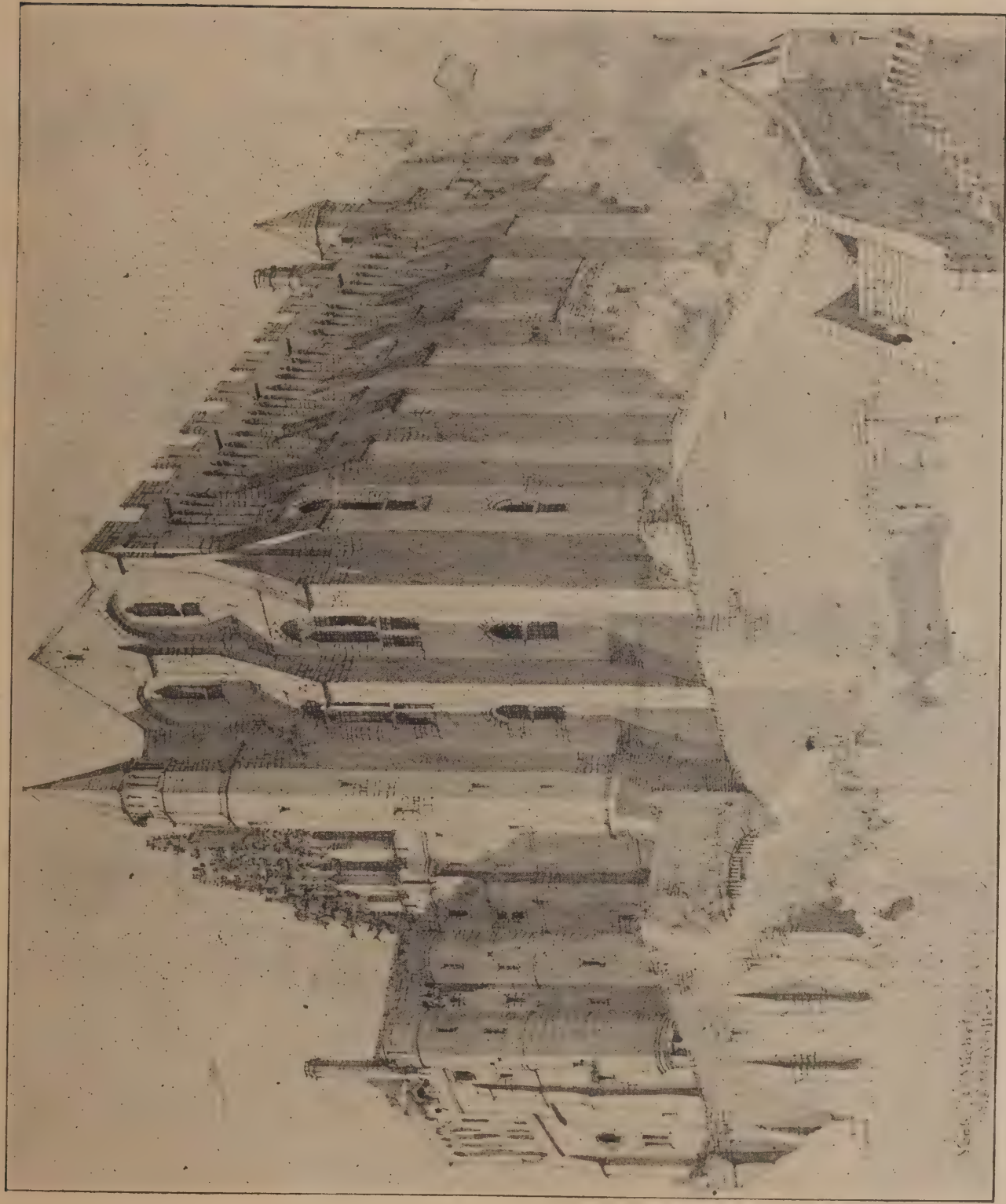
At the Surveyors' Institution, Savoy Street, Strand, a tribunal of appeal under the London Building Act, 1894, has sat to adjudicate upon an appeal by the London School Board against a notice of requirement served by Mr. Ellis Marsland, the district surveyor of Camberwell, calling upon the Board to make certain teachers' rooms 8ft. 6in. in height, instead of 7ft. 6in., as provided for in the plans of a school now being built at Leo Street, Old Kent Road.—Mr. H. F. Gibson, from the solicitors' department of the London School Board, who appeared in support of the appeal, said the district surveyor, by the notice he had served, had attempted to bring the teachers' offices and interviewing rooms within the operation of section 78 of the London Building Act; in other words, had attempted to classify them as habitable apartments subject to the statutory requirement that they should be of a minimum height of 8ft. 6in. The rooms in question, which were built on the half-floors of every school, were assigned to the use of teachers partly as an office, partly as a retiring and cloak room, and partly as an interviewing room. It was true that a small kitchener was erected in each, but even that could not be contended to bring them within the definition of an inhabited room.—Mr. T. J. Bailey, architect to the School Board, stated that these teachers' rooms were placed in all the schools built by the Board, and varied from 7ft. to 8ft. in height. That in the projected school at Leo Street would be 7ft. 6in. The only furniture provided were a chair, a table, a lavatory basin, and sets of hat pegs. All these rooms were planned to meet the approval of the Education Department, which, by their inspectors, exercised strict supervision over the use to which they were put.—Mr. Ellis Marsland, the respondent, stated that it was within his knowledge that the teachers' rooms were also used for managers' committee meetings.—The Chairman (Mr. A. Cates) said that, taking into consideration the way in which the rooms were used, the tribunal had decided to allow the appeal, but he must point out that the rooms must be used strictly for the purpose for which the Education Department allowed them to be appropriated.

MR. WILLIAM KENDRICK, M.P., has just lent to the Birmingham Art Gallery his fine example of Sir John Millais's early work, called "The Ransom," painted in 1862, which was No. 30 in the recently closed Millais Exhibition at Burlington House. It represents the interior of a room, with a group of seven persons in sixteenth century costumes. A knight is paying to some robber nobles the price agreed upon for the ransom of his two little daughters, who were left as hostages during his absence in search of the wherewithal to pay his fine. He holds out in his left hand some jewels. On the left stands a page, in blue and white, and on the right an old man with a dog holds the hands of the little girls as they cling to their father.



ÉGLISE ST. MALO, DINAN. THE CHEVET. PUGIN STUDENTSHIP DRAWING, 1897-8.

By CHARLES DE GRUCHY.



MONT ST. MICHEL, BRITTANY. THE MERVEILLE FROM N.E. PUGIN STUDENTSHIP DRAWING, 1897-8.
BY CHARLES DE GRUCHY.

HERR GEORG EBERS, the celebrated author and Egyptologist, draws the attention of Nile tourists and collectors of Egyptian antiquities to imitations of mummy portraits now being offered for sale. Herr Ebers says that the imitations are excellently done, but can easily be distinguished from the genuine by the following process: The genuine pictures are painted sometimes on relatively thick and sometimes on thinner panels. The former are mostly of sycamore wood, the latter of cypress, and were not sawn, but cut to size with a sort of hatchet, which is to be seen on Egyptian monuments, and is still used by Egyptian artisans. In the course of years the wood thoroughly dried. If one makes an incision, the part cut is without exception of a more or less dark brown colour. The forger painted only the edges of the thin panels with that colour, and if a piece is cut off the white ground is seen.

So dissatisfied are artists as a body with the state of the law of copyright as it applies to their works that they propose themselves to draw up a Bill which shall assert their rights more clearly and protect them more effectually. As it is, if a painter, when he sells a picture, omits to retain or assign the copyright, he loses all interest in it, or, to speak more strictly, copyright in that picture never arises. This was so very unsatisfactory that a commission was appointed to examine and report. Its recommendations were scarcely more favourable to the artist. It advised that if at the time of sale the painter did not specifically retain the copyright in the work which he disposed of, then it should pass with the picture to the purchaser. This view the artists consider a decidedly inequitable one, and the main proviso of their Bill will be that the copyright in a work of Art remains with the creator of the work when it is not by him specifically assigned.

THE REV. EVAN JONES, vicar of Strata Florida, is about to build a new church in the village of Pontrhyfendigaid, the parish church, which adjoins the ruins of the famous abbey, being a mile or two away from the village. Some time ago the vicar began to cart stones from the ruins for the construction of the new church, whereupon some objection was raised and correspondence ensued. In his last letter the vicar maintains that he has not exceeded his rights in any way by removing the local stones, but he is willing to waive his rights. He states that he will be most ready to arrange with the church authorities to sell the ruins either to the Archaeological Association, or any other person or persons who would like to buy them, for £2000, to be placed to the credit of the Ecclesiastical Commissioners for the purpose of augmenting the benefice. And now, he adds, those who have any real anxiety about this preservation have a chance to purchase the ruins, and manage them according to their own opinion.

THE London School Board has just adopted a scheme for regulating the work in connection with the alteration and improvement of schools. This states that "the Board has from time to time sanctioned the improvement of the earlier schools by the addition of halls, better cloak-rooms, wider corridors, additional staircases, and so forth. Generally, these improvements have been effected in connection with enlargements, but sometimes the improvements have not involved an enlargement; sometimes they have resulted in a reduction of places. The time has come when the Board should consider systematically and methodically the question of improving its older schools. The Works Committee have furnished a list of twenty-five schools where halls can be added at a moderate cost. On the other hand, there are some of the older schools, especially in the poorer and crowded neighbourhoods, where, from the point of view of education, improvements are greatly needed, although in some cases they would be very costly. It is suggested that the School Management Committee should consult the Board inspectors, and draw up a list of such schools, and that the Works Committee should

be asked to report whether it is practicable to improve these schools, and, if so, at what cost. The Works Committee should also report in the case of all the schools in either list whether it would be practicable to enlarge them, and whether the improvements could be more easily carried out along with enlargement. When all this information was obtained it would be desirable to determine that a moderate sum, say £100,000, yearly, which would involve a charge of £5000 (or £4500 at present rate of 2½ per cent. and fifty years repayment) for interest and sinking fund, should be set apart for the improvement of old schools, and lists might be prepared classing the desirable improvements in proportion to their urgency, in the same way as the Works Committee has done in relation to the improved drainage to the schools. It is probable that, taking one school with another, at least sixteen schools a year could be brought up to date in this way. There are in all 175 schools without halls, which should, sooner or later, be dealt with. Under this scheme they would be taken in hand gradually, and probably all of them—or nearly all—be made suitable in about a dozen years." The Board approve the principles set out in the memorandum, and agree that the sum of £100,000 in the coming year be set apart on loan for the purpose of improving old schools.

At the meeting of the R.I.B.A. on Monday week, Mr. Woodward asked the President if any communication had passed between Her Majesty's Office of Works and the Institute with reference to the proposed new Government offices?—The President: I may say that at present all that has passed is fully confidential, and I am sorry to say I cannot give any information.—Mr. Woodward: Might I ask that, as the Journal of this Institute is the medium of communication between the Council and the general body of our brethren, not only in London, but in the provinces, and in Ireland and Scotland, any of the communications that have passed shall be published in the next issue of the Journal.—The President: In these confidential matters, unless the people who request us to be confidential also request us to make it public we can hardly do so.

THE extensions at the Prince of Wales Dock, Swansea, which have just been opened, were authorised by Parliament in 1894, and the tender of Sir John Jackson, of Westminster, was accepted by the trustees in January, 1896. The works were begun in February, 1896, since which time they have been pushed without intermission. The area of the extension at ordinary spring tide level is 4½ acres, with a depth of water of 28ft. The effective length of quay frontage is about 2000ft. The walls are built of native stone, the masonry being rough rubble faced up to water level with fitted rubble, and above that level up to the underside of the coping with dressed ashlar. The coping is Cornish granite, with the exception of that round the coal hoist piers and on the top of the slag embankment between the two easternmost tips. Cast-iron horn bollards are fixed at intervals all round the walls on the edge of the coping, an arrangement which leaves the crane roads and adjoining lines clear of all mooring ropes. A number of iron ladders sunk flush with the surface of the walls afford ready means of landing from boats. In addition to these ladders, a granite staircase is provided at the north-east corner of the dock. There have been no special difficulties in construction of the extension, the only item to give cause for anxiety being the cofferdam which retained the water in the Prince of Wales Dock, after the end wall of that dock had been removed. This has stood remarkably well, showing no signs of weakness, and keeping unusually watertight, so much so, that a 10in. dia. steam pump working quietly has been able to get rid of all the water making in the ground and passing through the dam from the dock. The works, which cost about £60,000, were designed by, and carried out under the direct supervision of, Mr. A. O. Schenk, M.Inst.C.E., the trustees' engineer.

THE INSTITUTE'S PORTRAITS.

UNVEILING CEREMONY BY ALMA
TADEMA, R.A.

AN interesting ceremony was performed at the meeting of the R.I.B.A. last week, namely, the unveiling, by Mr. Alma Tadema, R.A., of an excellent portrait of the late President (Mr. F. C. Penrose), painted by Mr. J. S. Sargent, R.A. In carrying out the pleasing duty, Mr. Tadema said he considered it a great privilege to be called upon to unveil the portrait of a man whom he esteemed so highly. Mr. Penrose was a man who had pointed out to them that there was life in the straight line of Greek Architecture, that it should be painted to show that there was life in the lines of the brush. With regard to this portrait, he had seen it and admired it, and would continue to do so. Their past distinguished President was one of the architects who helped to restore—he would not use the word "restore," but save—the greatest monument of Architecture from further decay, and to have the portrait of such a President must be a pleasure to all of them; and to have such a good portrait was a matter for great congratulation. They now had such a good collection of portraits, that he would suggest to the Council the advisability of arranging a little gallery, because with such good things they could always appreciate them better when they were put before them in a proper line. He only wished to say that this portrait of their past President was a great addition to their collection, and a great addition to the history of the Institute. In the name of the Committee, he begged to thank Mr. Sargent for the beautiful work he had given them.—Professor Aitchison, in the course of his acknowledgment of the portrait, said their former President was one of the men who conferred dignity upon their Profession, not only by his talents, knowledge, and the advances he had made in the theory of Architecture, but also by his extreme devotion, not only to his own Art, but to the great art of astronomy—he supposed he should call it science. Plato, in one of his dialogues, complained of the architect as one of the people who falsified the realities, and said that instead of making line as it should be, they infused all sorts of delicate curves which did not come within the category of realities. After referring at length to the efforts previously made in the study of Greek Architecture, Professor Aitchison pointed out that Mr. Penrose was furnished with means to go out with his instruments, and said his knowledge of Architecture, and his general attainments, enabled him to show that the delicate curves and the peculiar variations which were so delightful to look upon, were perfectly true, and now he had proved to all time that these delicate perceptions of the Greeks were superior to those of any other nation that had lived. They would all be glad to have this addition to their excellent collection of pictures, this charming work by Mr. Sargent. They must all be grateful to him for giving the Institute so striking a portrait of their President, showing all the refinement, which was so marked, in a man of science and art. The Divine Art, of which Mr. Sargent was so excellent an exponent, made life delightful to all of them. He would hardly like to venture upon saying what he felt upon the Divine Art of painting. It was given to some few who were blessed with this peculiar gift, to hand down to others portraits of the great men and beautiful women; various striking effects in comedy and tragedy and of everyday life; and to give them the lovely views that only existed for one moment in glancing. He again thanked Mr. Sargent for his great gift to the Institute, and he also congratulated the members on having the portrait of so distinguished a man as Mr. Penrose.—Mr. J. S. Sargent briefly acknowledged the compliments, and a vote of thanks was also passed to Mr. Alma Tadema for unveiling the portrait.

Surveying & Sanitary SUPPLEMENT.

MARCH 30TH, 1898.

Reservoir Embankments.*

BY WILLIAM FOX, M.INST.C.E.

(Continued from page xxvii.)

THE DOWDESWELL RESERVOIR OF THE CHELTENHAM CORPORATION WATERWORKS.

THIS reservoir is on the river Chelt, about four miles above Cheltenham, and is situated on the lias clay. The Cheltenham and Banbury Railway follows the hill on one side of the valley in which the reservoir is constructed. At the time the reservoir was designed, in 1882, great trouble had been experienced in the embankments of this railway, owing to the ground under and adjacent to the embankment yielding and the banks slipping. It was therefore evident that unless some unusual course was adopted, difficulties would arise.

The embankment (see Fig. 3) is 730ft. in length, and 39ft. in height to the surface of the ground as it then stood; but this was, in the deepest part, 17ft. above the original surface of the ground, the valley at this point having been the site of an old mill dam, which through disuse had become silted up. Trial holes in this silt showed it to consist of very fine oolitic debris and clay, and a large percentage of water, giving it the appearance of very fine running sand. After the water was drained off, it was naturally much firmer, but it was thought, before it was removed, to be unfit for the formation of the embankment, and it was therefore decided that it should be run to spoil.

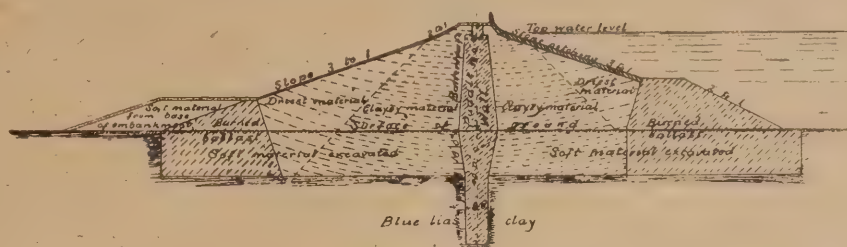
The material available for forming the embankment was chiefly lias clay of a very treacherous nature. There was, however, a limited amount of oolitic gravel found within the site of the reservoir, which was available for forming the outer part of the slopes.

The slopes on both sides are at 3 to 1 (see Fig. 4), with the exception of the top 6ft. of the outside slope, which is 2 to 1. The 3 to 1 slope on the inside is taken down to 16ft. below top water level, where there is a bench 15ft. wide. The whole of the toe across the valley to this level is formed of burnt ballast. The outside slope is 2 to 1 for the top 6ft., and then 3 to 1 to 22ft. below top water level. At this level a burnt ballast toe commences, which is kept within the 3 to 1 slope. Beyond the 3 to 1 slope there is a bench formed by the soft material excavated from underneath the base of the embankment. This bench is

* A paper entitled "Reservoir Embankments, with suggestions for avoiding and remedying Failures," read before the Society of Engineers.

TRANSVERSE SECTION OF EMBANKMENT

Fig. 4.



CHELTENHAM CORPORATION WATERWORKS. DOWDESWELL RESERVOIR.

35ft. wide, and terminates against the original ground with a 3 to 1 slope. It was originally intended to burn the lias clay obtained from the inside of the reservoir to form the burnt ballast, but it was found that the silt from the base of the bank, after it had time to drain, burned into excellent ballast, forming clinkers sometimes of several tons in weight. It was burnt *in situ*, thus saving the expense of conveyance to the position where it was to be used.

Although during construction the embankment settled downwards to a considerable extent, there have never been any signs of lateral movement.

The work has now been completed about ten years, and has shown no signs of failure. It may, therefore, be fairly assumed that the precautions taken have been proved to be successful.

MONKSWOOD RESERVOIR OF THE BATH CORPORATION WATERWORKS.

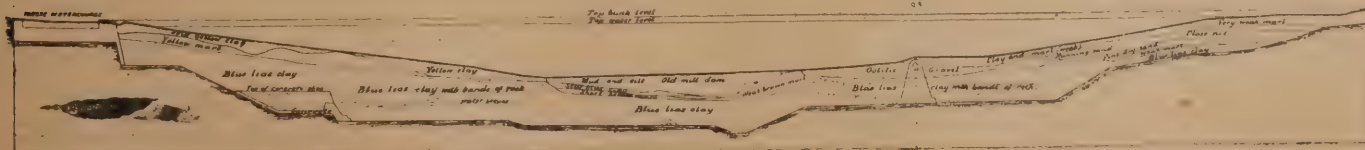
This reservoir is situated partly on the upper lias formation and partly on the oolitic sand, the puddle trench being entirely in the lias clay. Along the centre of the valley (see Fig. 5), across which the embankment has been made, a deposit of oolitic debris and peat was met with, varying in depth up to 17ft. or 18ft. This, of course, was removed on the line of puddle trench, in order to obtain a watertight foundation, and under the outer halves of both slopes of the embankment it was also removed and refilled with rubble stone, to avoid its squeezing and oozing out by the superincumbent weight of the embankment to be placed upon it. In the main puddle trench a few small springs were met with in the lias clay, but these were either cut through or else kept back by cement concrete. Also, in the oolitic sand in the arm trench (see Fig. 6) on the north side of the reservoir, a good deal of water was from time to time met with, although it was, no doubt, to a large extent due to surface water running off the hill side beyond.

The material at hand for the formation of the embankment, although much of it was excellent for puddle, was of a most difficult character to deal with in the formation of the embankment on each side of the puddle. To guard against the possibility of slipping the toe of the inner slope, for a width of about 55ft., and for a height of about 18ft., was formed of dry rubble, which, with the rubble filling below, made a total maximum depth of stone of about 38ft., and a maximum width of about 75ft. The rubble was thus brought to 20ft. below top water level, where it terminated with a berm 20ft. wide. Beyond the outer slope a spoil bank of peat, excavated from the inside of the reservoir, was formed. The material for the embankment was rendered worse by the very bad weather which prevailed during the first winter that the works were in progress. The clay became exceedingly slippery, and the oolitic sand, which was quite dry and easy to handle in summer-time, became almost running sand in wet weather. The difference in the specific gravity of this material when wet and when dry was very marked; a cubic foot, when measured dry and loose, weighing about 63lb., whereas a cubic foot, when wetted and pounded, weighed 116lb. It was in consequence of this that, as the embankment approached completion, there were evident signs that it would not stand at the slopes originally designed, namely, 2 to 1 on the outer slope, and 3 to 1 on the inner slope.

At this time the puddle wall was within a few feet of its full height, and the embankment on each side was practically taken to top bank level, the last 8ft. or 10ft. having been put together with practically no moisture to consolidate it, except the surplus water from that used in making the puddle wall. The consequence was that the puddle, which was much heavier than the earth on each side, settled down to an abnormal extent, and probably squeezed into the earth, causing a

CHELTENHAM CORPORATION WATERWORKS. DOWDESWELL RESERVOIR.
LONGITUDINAL SECTION OF PUDDLE TRENCH

Fig. 5.



slight sign of bulging on the outer slope above the top of the peat spoil bank. This was remedied by bringing some stony material from an adjacent quarry and placing it on the outer slope, flattening the slope to $2\frac{3}{4}$ to 1; but before this had been completed the pitching on the inner slope, just above the rubble toe, also showed signs of lifting. The rubble toe below was unmoved, and, from the form that the pitching took, it was evident that the toe had not moved, but was doing its work by upholding the earth behind it. It was then decided to weight the 3 to 1 slope with rubble. When this was done the embankment was completed without difficulty, although it con-

Surveying and Sanitary Notes.

THE Swansea Corporation has accepted the tender of Messrs. Paterson and Co. for the completion of the Cray Water Works at a cost of £255,747.

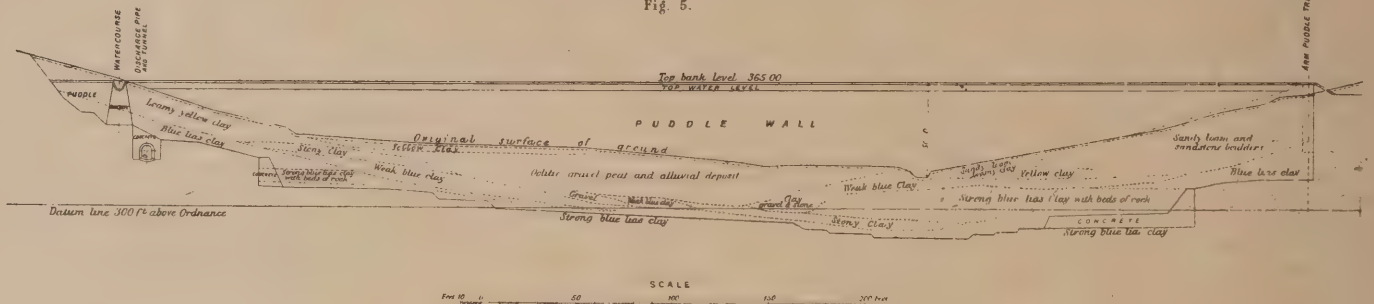
A LOCAL GOVERNMENT BOARD enquiry has been held at York into an application by the Corporation for power to borrow £23,000 for

claiming for dilapidations to property known as Hartfield Grove, Hartfield, under a lease held by the defendant, Mr. Walter Lloyd. At the expiration of the lease a schedule of dilapidations was prepared by surveyors, and tenders solicited. The lowest tender sent in was from Mr. Luxford, builder, of St. Leonards, and amounted to £415. There were, however, other considerations, which brought the plaintiff's claim up to a sum of something over £600. On the other hand, the dilapidations had been estimated by defendant's surveyors at about £200, and another £100 had been allowed for various other things. There is, therefore, a sum of about £300 in dispute.

BATH WATERWORKS MONKSWOOD RESERVOIR

Longitudinal Section of Puddle Trench

Fig. 5.



tinued to settle vertically for some time, and this settlement is probably not even yet completed.

The author attributes these difficulties to the great difference in the material forming the puddle wall and the earth used for the bank, aggravated by the latter being put together practically without moisture. He thinks the surplus water from the puddle only made matters worse, as it was not distributed evenly through the embankment. He is of opinion that in this instance a judicious use of water on the bank might have had a good effect, especially as the slope of the cutting from which the material was taken stands at a slope of $1\frac{1}{2}$ to 1.

THE first sod of a new dock which is to be constructed at Llanelly has been cut. The dock, which is to be nine acres in area, will be 1000ft. long and 400ft. wide, with quays of 1200ft. It will be 17ft. deep on the sill, and the gates will be 50ft. wide. The total cost will be nearly £200,000.

THE Tunbridge Wells Council has adopted a report of the Borough Surveyor in favour of a system of water filtration at Pembury. This very lengthy report pointed out the need of a better system of filtration at the bore hole supply centres, to cost £19,380 18s. 6d. This

sewerage works, £20,000 for the purpose of electric lighting, and £11,852 for street improvements.

MESSRS. BALDWIN-LETHAM, C.E., and W. J. Dibdin, F.I.C., have prepared a scheme for the purification of the sewage of Ashton-under-Lyne by the bacteria process, by which, on a very limited space, an extremely pure effluent will, it is said, be obtained.

THE London County Council received only two tenders for the construction of a new foot passenger tunnel under the Thames at Greenwich. They were Messrs. Mowlem and Company, £119,732; Messrs. Pearson and Sons, £155,000. The tenders were referred to the Bridges Committee.

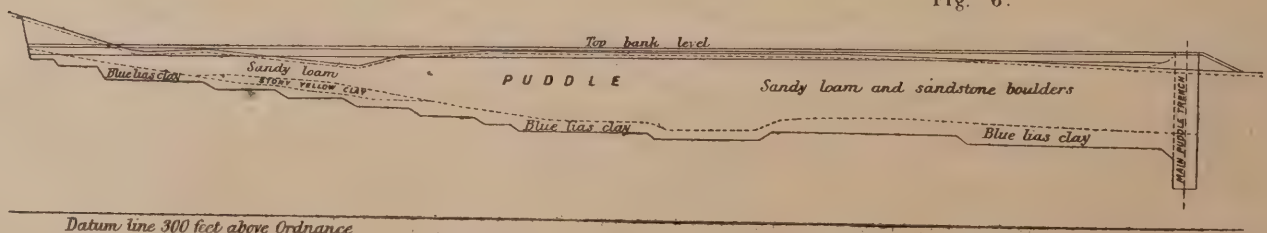
THE Harbour Board at Cape Town are formulating a scheme for improving the harbour in Table Bay. It is proposed to reclaim some two hundred acres of land near the south arm to beyond the Castle. Here it is hoped to establish immense shed accommodation, offices, warehouses, workshops, and railways; the estimated cost of which is £4,400,000. There is also some talk of building a new graving dock, which would entail the deepening of the entrance to the Albert Basin, the cost of which undertaking is put down at £285,000. In all,

LANCASHIRE sets an admirable example to many counties in the matter of river purification. In 1892, when the much-needed work was taken energetically in hand, pollution was the normal condition of the whole river system. But a vast change for the better has already taken place, and the time seems not far distant when purification will be the rule instead of pollution. At the last meeting of the Ribble Joint Committee, under the presidency of Sir J. T. Hibbert, the report recorded progress as gratifying as remarkable, considering what strenuous opposition from "vested interests" must have been encountered. Sewage interception schemes have increased from six to fourteen, while the number of areas without sewage disposal works has diminished from twenty-two to seven. In 1892 there was not a single authority with efficient disposal works, whereas now no fewer than thirty-one are now so endowed. The broad result of these happy changes is that during last year only four orders were made against manufacturers to desist from polluting streams with refuse, and all of these must have been comparatively trivial cases, as no penalties were applied for.

IN connection with the contract recently entered into by Mr. John Aird with the Egyptian Government, for the construction

Longitudinal Section of Arm Puddle Trench.

Fig. 6.



BATH WATERWORKS. MONKSWOOD RESERVOIR.

would include the purchase of three acres of land for filter beds, works of construction, materials, drainage, machinery, roads, &c. Very soon, with the inclusion of such suburbs as St. Peter's, Langton, and Rusthall, the daily supply of pure water would be quite 700,000 gallons throughout the year. Medical testimony favoured filtration.

the carrying out of the whole scheme of improvements will involve an outlay of some £5,500,000.

IN the Official Referee's Court, London, Mr. Hemming, Q.C., has had before him the case of Melville v. Lloyd. This was an action brought by Mrs. Melville, widow of Judge Melville,

of dams on the Nile at Assuan and Assiut, a vessel of 1000 tons has left England with plant, and surveys have already been made as a preliminary to commencing operations. Sir Benjamin Baker will be the chief engineer in England, and Sir William Garstin will have chief control in Egypt. The dam at Assuan is to be a great masonry structure a

mile and a quarter long, and about 60ft. wide at the base. It will have 130 openings, each about 12ft. by 8ft., to control the water, which will be backed up the Nile over 180 miles, and, when the work is completed, will be allowed to pass through as required. The dam will have a granite foundation throughout. The dam at Assiut will be similar in character, but will be constructed of brickwork (after the fashion of the barrage near Cairo), with foundations raised upon the sandy formation. The area mainly benefited will be that between the two dams, the sites chosen for which are 250 miles apart. When the work is finished the acreage of land available for cultivation will be more than doubled. The construction of the dams will give employment for five years to something like 15,000 native workmen. Contracts have been placed in England for the principal machinery, and many workshops in this country are already busily employed in connection with the scheme.

IN connection with the scheme for the development of Cattewater at Plymouth, the first section of the Victoria Wharves and Pier, which Mr. C. L. Duke is constructing on the foreshore of Deadman's Bay, is completed. Along the sea front Mr. Duke has built a wharf some 180ft. in length, and the other works still in progress comprise a pier jutting out 100ft. into the harbour, a deep-water basin for the accommodation of vessels of large draught, and a smaller basin of shallower depth for vessels engaged chiefly in the coasting trade. Originally it was intended that the pier should be continued to a distance of 300ft. from the shore, but the Cattewater Commissioners objected that it would interfere with the traffic of the harbour, and consequently it was shortened to 100ft. In the light of recent controversy, however, it is interesting to note that the seaward end of the pier, if it had been extended as originally designed, would have projected only some 20ft. further into the harbour than the line Sir J. Wolfe Barry has laid down for the proposed wharves to accommodate the ocean liners. The deep-water basin, now partly excavated, will run back at right angles to the wharf for a distance of 250ft., and will have a depth of water 25ft. at low-water spring tides. The wharfrage on the eastern side of the basin will be 250ft. long, and on the western side, with the pier, 350ft., a sufficient length to accommodate vessels of large tonnage. The smaller basin is being constructed between the Corporation quay and the western side of the pier. The Marine Field has been levelled, and will form a convenient site for warehouses, for which there is ample room. An approach road is being made to the wharves. Railway communication is to be established with the Victoria Wharves by forming a junction with the South-Western branch. The whole of the works have been designed by Mr. H. Victor

Prigg, and are being carried out under the personal direction of Mr. Duke.

A REPORT has been issued by the City Engineer of Norwich (Mr. A. E. Collins), furnishing a summary of the principal work carried out during the past year by the permanent branches of the City Engineer's Department. It appears that there have been 5412 superficial yards of granite sett paving laid during the year, with 2175 yards of granite channel. The sett paving, without concrete foundation, involves a cost of 7s. 7d. per super yard, the channelling costing 5s. 6d. per lineal yard. On the other hand, only 897 yards of wood pavement were laid, the cost per yard of creosoted deal paving, without concrete, being 8s. 4d. per super yard. Thus the new granite work is six times as large as the wood paving, and is somewhat less expensive. As to macadamised roads, there has been a much larger use of broken granite, no less than 50,000 yards of highway having been scarified, coated, and rolled, giving an average thickness of nearly two inches of new granite over the surfaces dealt with. With 2100 yards treated with broken flint, 20,000 yards with road shingle, and 2400 yards with broken stone, the renewal of road surfaces reaches a total of 74,500 yards. It is also worthy of note that 777 loads of roadside scrapings have been utilised as binding material, instead of using marl. In regard to the new tar-paved footways, these—the surface of which is finished with Kentish rag, Derbyshire limestone, and iron slag—show a total of nearly 7000 yards, which have been laid at an average cost of 1s. 10½d. per yard. The report states that a large quantity of clinker is used for the foundation of tar-paving, which can be obtained for the carting, and this takes the place of gravel, which costs 2s. 9d. per cubic yard. Then, 10,700 yards of old tar-paved footways have been refaced, and 226 yards of tar-paved carriage-way has been laid in St. Leonards Road and Duke Street; whilst 1900 cubic yards of gravel have been used for path-making, and nearly 500 super yards of concrete footway have been laid, with considerable repairs to the flagged footways. Not the least important section of the report deals with new streets and buildings, and street widenings have been effected in Fye Bridge Street, Colegate Street, King Street, Waterloo Road, City Road, Bank Street, Upper King Street, Vauxhall Street, Rupert Street, Sayer's Street, &c. A new street has been made continuing Derby Street into Heigham Street. 377 new dwelling-houses have been erected in the year, the total—with additions to houses and factories, and new warehouses and factories—being 450.

MR. H. GILBERT Whyatt, assistant borough surveyor for Salford, recently read a paper, entitled "The present position of the sewage purification problem," at a meeting of the

Sanitary Inspectors' Association (Lancashire and Cheshire Branch) held at the Royal Technical Institute, Salford. After referring to various inquiries made by the Local Government Board upon the subject, Mr. Whyatt said, in Salford experiments had been going on for about ten years, and much time had been spent on various patented processes, chiefly chemical. About five years ago the Committee turned their attention to artificial filters. The first set of six filters were arranged at three heights with a ventilation floor between each twenty inches of filtering material. Two filters were composed of gravel and sand, two of coke breeze, and two of cinders, and very good results were at once obtained from them all. Cinders proved the best filtering medium. The experiment was continued for fifteen months at an average rate of 500 gallons per square yard per day, with very successful results. It was then wished to prove the advantage of a preliminary "roughing" filter and varying degrees of aeration; and this experiment was still going on. The filters were tried at varying rates of flow, and, so long as a filter did not choke up, the effluent was uniformly good. If the filter choked up, it was found that by leaving it idle for a week or two it would recover itself, and again take the sewage perfectly. In 1895 two filters, eight feet deep, were made in order to ascertain whether a deeper mass of filtering material would deal with a larger quantity of effluent, and it was found that while a 5ft. filter would deal with 500 gallons per yards daily, an 8ft. one would deal with 800 gallons. In 1896 the filters were run practically continuously for twelve months at the rate of 1000 gallons per square yard per day, then for a short time at 500 gallons, and now at 700 gallons, the only rest being for a short time daily whilst the small pump supplying them was cleaned. Contrary to expectations, they stood that severe test. In place of the sprinkling troughs spray jets were now used. The surface of the filter was perfectly open, and water was not allowed to collect anywhere. There had been no appreciable growth of the brown sewage fungus since 1895, and the bacterial filters had been protected by a "roughing" filter of fine gravel. Some twenty-five precipitation experiments had been tried, and the effluent of all passed through the bacterial filters with good results. The Corporation had resolved to spend £80,000 in altering the works and laying down bacterial filters, but the Local Government Board had refused its sanction unless the Corporation included a sum to cover the purchase of land over which the filter effluent might be turned and further purified. Mr. Whyatt considered the time had come when the Local Government Board should be roused from its state of "agnostic immobility" and take upon itself to examine whether there was not the efficiency in bacterial filters that was claimed for them.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
April 2	Ballybrown, Ireland—Alterations to Church	William Bell	Rev. R. Kirkby, P.P., Parochial House, Patrick's Well.
2	Lancaster—Rebuilding Hotel and Three Shops	Carter's Knottingley Brewery Co. Ltd.	J. Parkinson, Architect, 67, Church-street, Lancaster.
2	Pontefract—Alterations to Rose & Crown Public-house	Corporation	J. Holmes, Greaves & Co., Architects, Corn Mrkt., Pontefract.
4	Bradford—Alteration of Shed and Offices	Co-operative Society	J. H. Cox, Town Hall, Bradford.
4	Clacton-on-Sea—Children's Home	Samuel Webster and Sons, Ltd.	Charles Bell, Architect, 3, Salter's Hall-court, E.C.
4	Daventry—Erection of Six Cottages	Urban District Council	J. R. Williams, Architect, Moot Hall, Daventry.
4	Halifax—Rebuilding White Horse Inn	Governors	Jackson and Fox, Architects, 22, George-street, Halifax.
4	Keighley—Fence Walling	Paddington Vestry	Devonshire Estate Offices, Bow-street, Keighley.
4	Leyton—Extension of Electricity Works	St. Pancras Vestry	H. C. Bishop, Cathall-road, Leytonstone.
4	Llangollen—Head Master's House, County School	County Council	H. Teather, Architect, 68, Fisher-gate, Preston.
4	London, W.—Erection of Underground Convenience	Corporation	Surveyor, Vestry Hall, Harrow-road, W.
4	London, N.W.—Underground Conveniences		W. N. Blair, Engineer, Vestry Hall, Pancras Road, N.W.
4	Ranceby, near Sleaford, Lincs.—Foundation of Asylum		G. T. Hine, 35, Parliament-street, S.W.
5	Droitwich—Erection of Refectory House, &c.		A. T. Harris, Gas Manager, Town Hall, Droitwich.
5	Bishop Auckland—Cottage Hospital		Local Board Office, Town Hall, Bishop Auckland.
5	Fordingbridge—Nursing Home		Fred. Bath, Architect, Crown-chambers, Salisbury.
5	Lancaster—Rebuilding Liverpool Bank	Urban District Council	John F. Curwen, Architect, 26, Highgate, Kendal.
6	Aldershot—Erection of Hospital		N. F. Dennis, Surveyor, Council's Office, Aldershot.
6	Llanbadarn, Wales—Restoration of Tower		W. A. Miller, Cambrian-street, Aberystwith.
6	Morecambe—Houses, &c.	Standing Joint Committee	John Kinpe, Boulton-square, Morecambe.
6	Newton-le-Willows, Lancs.—Police Station	Plumstead Vestry	Henry Littler, Architect, 68, Fisher-gate, Preston.
6	Plumstead—Underground Convenience	Co-operative Society	W. C. Gow, Engineer, Vestry Hall, Maxey-road, Plumstead.
6	Sherburn, Durham—Stores	The Committee	Co-operative Society Offices, Sherburn Hall, Durham.
7	Kendal—Alterations to Schools	Corporation	Robert Walker, Architect, Windermere.
8	Ipswich—Erection of Fire Station		E. Buckham, Surveyor, Town Hall, Ipswich.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
April 9	Cookstown, Ireland—Court House	Grand Jury, County Tyrone	Secretary, Grand Jury, Curagh.
" 9	Margate—Agricultural Show Buildings	East Kent Agricultural Society	The Secretary, Canterbury.
" 9	Downpatrick, Ireland—Latrine	Guardians	Poor Law Offices, Downpatrick.
" 13	Farnham—Erection of Laundry	Guardians	Friend and Lloyd, Architects, Grosvenor-road, Aldershot.
" 16	Windsor—Alterations to Laundry	Guardians	Surveyor's Office, 17, Park-street, Windsor.
" 16	Cairo, Egypt—Supply of Cement	Public Works Department	Inspector-Genl. of Irrigation, Public Works Ministry, Cairo.
" 18	New Brompton—Erection of Bakery, Flour Store, & Shop	New Brompton Economical Society	E. J. Hammond, 111, High-street, New Brompton, Kent.
" 22	Sheffield—Erection of Fire and Police Station	Watch Committee	Joseph Norton, Alliance-chambers, George-st., Sheffield.
" 27	Norton Woodseats, near Sheffield—Erection of Lock-up	Standing Joint Committee	J. Soames Story, Surveyor, Offices, St. Mary's Gate, Derby.
" 28	Edmond, Salop—Erection of Agricultural College	Governors, Harper Adam Foundation	H. Teather, Architect, Andrew's-bldgs., Queen-st., Cardiff.
July 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c. ... ..	.....	Brazilian Legation, London.
No date.	Abertillery, Monmouth—Church	Rev'd. H. S. Rees	C. B. Fowler, Architect, Bank-chambers.
"	Armley, Leeds—Houses, &c.	H. Pritchard	F. W. Rhodes, Architect, Upper Wortley, Leeds.
"	Ashton-under-Lyne—Seventeen Houses, &c. ... ..	.....	T. W. Lindsey, Architect, Market Avenue, Ashton-on-Lyne.
"	Bradford—Villas ... ..	.....	Fred. Wild, Architect, 7, Charles-street, Bradford.
"	Buttershaw, Yorks.—Erection of Residence ... ..	.....	Brayshaw & Dixon, Architects, Bowling Old-lane, Bradford.
"	Carlisle—Four Shops and Dwelling-houses	Messrs. Dixon	H. Higginson, Architect, Carlisle.
"	Carlisle—Alterations to Savings Bank ... ..	.....	H. Higginson, Architect, Carlisle.
"	Caversham, Oxon—Erection of Hotel ... ..	.....	Geo. W. Webb, Architect, Market Place-chambers, Reading.
"	Chipping Norton, Oxon—Masonic Temple ... ..	.....	A. J. Rowley, Architect, 132, High-street, Oxford.
"	Darlington—Erection of Sunday School ... ..	.....	W. J. Morley, Architect, 269, Swan Arcade, Bradford.
"	Kesh, Ireland—Erection of Creamery ... ..	.....	J. A. Aikew, Secretary, Kesh.
"	Morecambe—Erection of Pavilion	Warwick's Revolving Tower Co. Ltd.	James Marshall, Architect, Morecambe.
"	Sheffield—Fifteen Houses at Meadow Hall ... ..	.....	Herbt. W. Lockwood, Pat. atine-chbrs., Finstone-st., Sheffield.
"	Usk, Monmouth—Rebuilding House and Shop ... ..	.....	Crown Brewery Office, Pontypool.
"	Wakefield—Villas ... ..	.....	Willie Wrigley, Architect, 6, Westgate, Wakefield.
"	Winchester—Erection of Schools ... ..	.....	Colson, Farrow and Nisbett, 45, Jewry-street, Winchester.
"	Plymouth—Supply of Sand ... ..	.....	C. L. Duke, Sutton-road, Plymouth.
"	Chesterfield—Chapel ... ..	.....	W. J. Morley, Architect, 269, Swan Arcade, Bradford.
"	Colchester—Restoration of Church ... ..	.....	C. E. Butcher, Architect, 3, Queen-street, Colchester.
ENGINEERING—			
April 2	Bath—Water Reservoir, &c.	Rural District Council	E. H. Sheppard, Surveyor, 3, North Parade, Bath.
" 2	Buxton—Heating Schools	Trustees	S. Selby, 21, High-street, Buxton.
" 4	Bournemouth—Motor Vehicles	Horse Committee	F. W. Lacey, Municipal Offices, Bournemouth.
" 4	Windsor—Supply of Gas Purifier	Royal Gaslight Co.	Company's Offices, 15, Victoria-street, Windsor.
" 4	Bishop's Castle—Stopping Leakage in Reservoir	Corporation	Borough Surveyor, Bishop's Castle.
" 4	Glastonbury—Water Main	Urban District Council	Borough Surveyor, Glastonbury.
" 4	Newbiggin-by-Sea—Well	Urban District Council	Inspector of Nuisances, 14, Queen-st, Newbiggin-by-the-Sea.
" 4	Glasgow—Railways	Lanarkshire and Ayrshire Railway Co.	Formans and McCall, Engineers, 160, Hope-street, Glasgow.
" 5	Milton-next-Sittingbourne—Gas Apparatus	Urban District Council	A. Davison, Manager, Gasworks, Milton-next-Sittingbourne.
" 5	North Shields—Station Meter	Tynemouth Gas Company	Wm. Hardie, Jun., Engineer, Gasworks, North Shields.
" 6	Velsen, Holland—Dredging and Widening Canal	Ministry of Waterstaat	Commercial Department, Foreign Office, S.W.
" 7	Ditchingham, Norfolk—Reconstructing Bridge	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 7	St. John's Hill, S.W.—Laundry Apparatus	Wandsworth and Clapham Union	A. N. Henderson, Guardians' Offices, St. John's Hill, S.W.
" 9	Middleton, Lancs.—Steam Fire Engine	Corporation	Job Kempton, Superintendent, Fire Brigade, Middleton.
" 12	Derby—Electric Wiring	Corporation	Engineer, Electric Lighting Works, Derby.
" 12	Dukinfield—Sewage Purification Works	Joint Sewerage Board	Messrs. Newton, Engineers, 17, Cooper-street, Manchester.
" 12	St. Helens, Lancs.—Still	Gas Committee	The Engineer, Gasworks, St. Helens.
" 14	Congleton, Cheshire—Water Supply Works	Rural District Council	C. Russell Hall, Engineer, West-street, Congleton.
" 20	Glasgow—Ballachulish Railway Extension	Callendar and Oban Railway Co.	Sir John Wolfe Barry, 21, Delahay-street, Westminster.
" 25	Sophia, Bulgaria—Supply of Drinking Water	Municipality	Commercial Department, Foreign Office, S.W.
" 27	Stranoriar—Railway Extension	Donegal Railway Co.	James Barton, Engineer, Exchange-buildings, Dundalk.
July 1	Madras—Irrigation Works ... ..	.....	Chief Engineer for Irrigation, Madras.
" 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
IRON AND STEEL—			
April 2	King's Lynn—Fencing	Corporation	E. S. Silcock, Borough Engineer, Lynn.
" 4	Huddersfield—Tramway Rails, &c.	Corporation	Borough Surveyor, Huddersfield.
" 4	Manchester—Railway Stores	Lancs. and Yorks. Railway Co.	Stores Department, Osborne-street, Manchester.
" 5	Frimley—Gates, Fencing, &c.	Urban District Council	Surveyor's Office, High-street, Camberley.
" 7	Cairo, Egypt—Railway Plant	Public Works Department	Inspector-Genl. of Irrigation, Public Works Ministry, Cairo.
PAINTING AND PLUMBING—			
April 5	Keighley—Painting Central Conservative Club-rooms	The Committee	The Secretary, Keighley.
" 12	Castleford—Painting and Papering House	Burial Board	The Clerk, Station Road, Castleford.
ROADS—			
April 2	Batley—Street Works	Town Council	O. J. Kirby, Borough Surveyor, Batley.
" 4	Sudbury, Suffolk—Supply of Granite	Corporation	T. W. A. Hayward, Borough Surveyor, Sudbury.
" 4	Tong, Yorks.—Street Works	Urban District Council	James Smith, Surveyor, Tony-street, Dudley Hill.
" 4	Warrington—Street Works	Paving and Sewerage Committee	Thomas Longdin, Surveyor, Town Hall, Warrington.
" 5	Withington, Lancs.—Road Materials	Urban District Council	Arthur H. Mountain, Surveyor, Town Hall, Withington.
" 6	Whickham, Durham—Road Materials	Urban District Council	Thos. Lambert, Architect, Town Hall, Gateshead.
" 6	Bristol—Roads, &c., Redland Gardens	Rural District Council	H. J. Jones, Architect, 12, Bridge-street, Bristol.
" 6	Ripon—Making New Road	Guardians	J. W. Highmoor, 19, Coltsgate-hill, Ripon.
" 6	Sudbury, Suffolk—Granite Spalls	Corporation	H. C. Canham, Clerk, 68, Friar's-street, Sudbury.
" 6	Sunderland—Various Street Works, &c.	Urban District Council	Borough Engineer, Town Hall, Sunderland.
" 6	Hove—Laying, &c., of Wood Paving	Urban District Council	H. H. Scott, Town Hall, Hove, Sussex.
" 9	Walsall—Supply of Slag	Rural District Council	Fred. W. Mager, District Surveyor, Aldridge.
" 12	Newark—Supply of Granite and Slag	Claypole Rural District Council	C. D. M. Trinder, Dist. Surveyor, Brant Broughton, Newark.
" 27	Leyland, Lancs.—Carting Road Material	Hundred Highway Board	J. Whitfield, Clerk, 10, High-street, Chorley.
SANITARY—			
April 4	Battle, Sussex—Drain	East Sussex County Council	Henry Caw, Surveyor, County Hall, Lewes.
" 4	Glastonbury—Sewer	Urban District Council	S. Austin, Clerk, 11, Chalkwell-street, Glastonbury.
" 4	Pudsey—Sewers	Urban District Council	J. Jones, Surveyor, Council Offices, Pudsey.
" 4	West Malling, Kent—Cast-iron Drain	Union Guardians	Professor H. Robinson, 13, Victoria-street, Westminster.
" 5	Epping, Essex—Construction of Sewers, &c.	Rural District Council	E. Egan, 39, Lombard-street, London.
" 5	Jarrow—Laying Pipe Sewers	Vestry	J. Peirce, Borough Surveyor, Jarrow.
" 6	Plumstead—Underground Convenience	Guardians	E. Hughes, Clerk, Plumstead.
" 9	Downpatrick—Latrine, Portaferry Quay	Urban District Council	J. W. Montgomery, Clerk, Downpatrick.
" 11	Church, Lancs.—Sewering	Urban District Council	J. E. Reddish, Clerk, Church.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
April 30	Cricklade and Wootton Bassett—Water Supply Scheme	£21, £10 10s.	Rural District Council.
May 1	Belper—Sewage Disposal Schemes	£52 10s., £26 5s.	Urban District Council.
" 25	Tipton, Staffs.—Laying-out Park	£25, £10	Urban District Council.
" 28	Trowbridge—Technical School	£40, £30, £20	The Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major F. L. Anderson, R.E., South Camp, Aldershot.
June 24	East Ham—Offices, Library Institute, Fire Station, and Public Baths.	£105, £52 10s.	Urban District Council.
July 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phoebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.
No date.	Godalming—Designs for Municipal Buildings	£52 10s.	Borough Council.

Constructional Steelwork.*

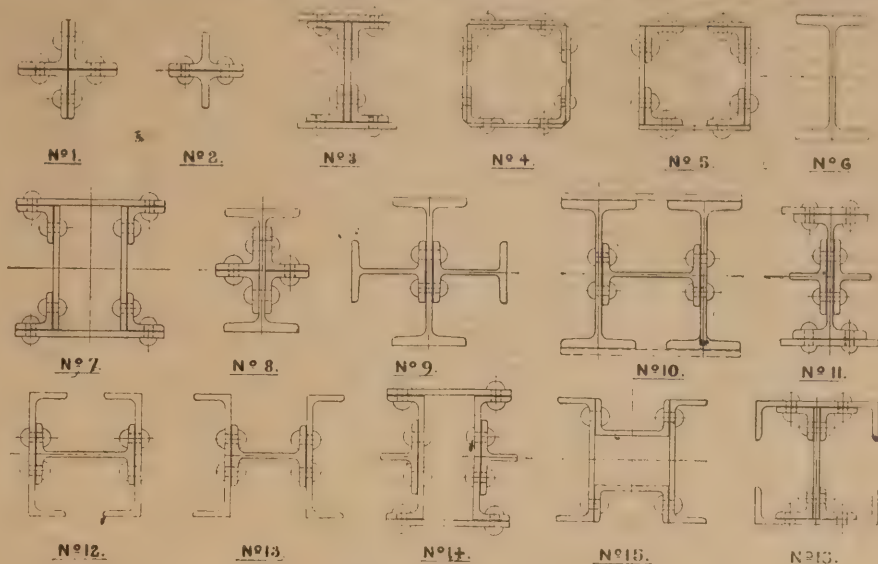
By T. C. CUNNINGTON.

UNTIL recent years the subject under consideration was generally considered to be within the sphere of the "civil engineer" only, but with the various developments, both in character and in extent of recent buildings and requirements, it has to be seriously considered by the architect. In buildings of the "warehouse" or "factory" class, the construction is comparatively simple. The complication, both as regards loads and construction, arises where the several parts of the same building are occupied by several different classes of tenants and devoted to different uses.

In dealing with a subject of this class, so many points have to receive consideration independently of safety of the building and utility of the various sections for their requirements. Where the interiors of various rooms are decorated, the construction has to be confined within the limits of the proposed treatment and internal Architecture. In City buildings, where space and light are of the most paramount importance, every thought and care has to be taken with the view to limiting the columns, stanchions, girders, and floors to the minimum sections consistent with their carrying power.

In the first place we will consider interior columns and stanchions with their several connections and joints, as upon them depends principally the stability of the superstructure. Interior columns and stanchions form one of the most important steps in the modern problem of design, and greater variations are probably to be found in them than in any other features of steel construction. Each of the several forms has its own adherents, and the many types of connections between the columns and stanchions and with the floor systems permit of an unlimited choice. We will endeavour to investigate the more prominent forms, and point out the advantages and disadvantages of each. The most satisfactory for general and specific cases may then be selected as combining the desired features. The relative advantages of the various sections are of the greatest importance, as affecting economical and successful design. In actual practice the treatment of the different shapes will be found to vary greatly with the designer, not only in the relative value of the sections, but in the treatment of any one section. In the first place the formulae differ greatly, not in fundamental principles perhaps, but in the treatment being often empirical, and containing factors deduced from some special case. These formulae, also, generally assume ideal loading, which seldom occurs in the actual

* Paper read before the Architectural Association on Friday night.



SECTIONS OF STANCHIONS.

building, and none, or very few full-sized tests, have ever been made on the effects of eccentric loading.

The general principles which govern the resistance of built columns may be summed up as follows:

1. The material should be disposed as far as possible from the neutral axis of the cross-section, thereby increasing "R."
2. There should be no initial internal stress.
3. The individual portions of the column or stanchion should be mutually supporting, and
4. The individual portions of the column or stanchion should be so firmly secured to each other that no relative motion can take place, or they will fail as a whole.

From experiments, the closed column and stanchion is stronger than any open one, due to the fact that the edges of the segments are mutually supporting when held in contact by complete closure. Therefore the circular-built column is undoubtedly the most favourable form for compression, because the capacity of columns of equal areas varies as the metal is removed from the neutral axis. It must also be remembered that any form of column or stanchion, having a maximum and minimum radius of gyration, is not economical for use under a single concentric load, as the calculations must be based on the minimum radius of gyration. The metal represented by the excess of the maximum radius of gyration is, of necessity, disregarded, and part of the section is thus lost or wasted when we consider the ideal efficiency of the column; but practice does not always support theory, and many

other questions besides mere form arise in connection with the judicious choice of a section.

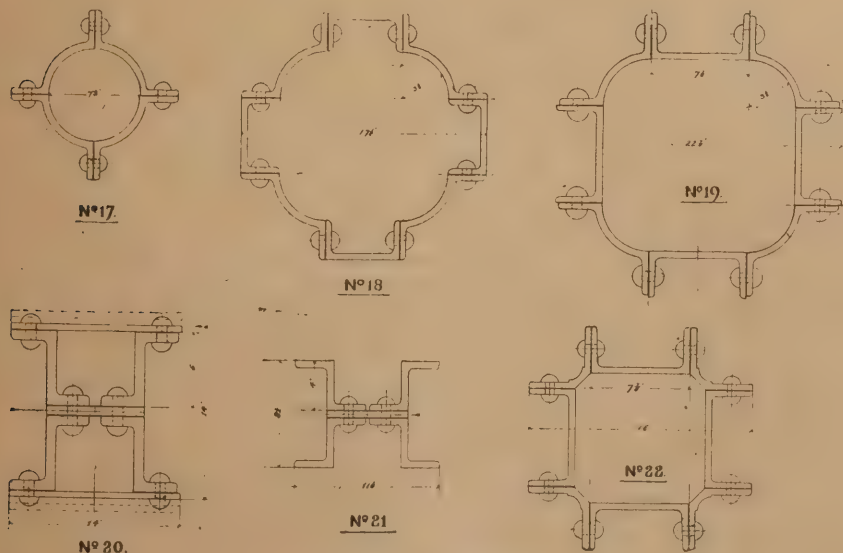
The form of stanchions and columns most generally in use is illustrated. You will observe that No. 1 section is made of four angles, rivetted back to back; No. 2, of two T-bars, also rivetted back to back. The caps and bases of these are easily formed by either forging one of the flanges of each bar at right-angles to the stem, or rivetting forged angle-seatings to the stem to receive cap and base plates. In illustrations 3, 5, and 7, these stanchions are made up of angle-bars rivetted together as indicated. The strength and size can be either increased or decreased as circumstances require. The caps, bases, and flange plates of these forms are attached by angle cleats rivetted to the plates, angles, and webs. Bearings for joints or girders at intermediate levels can be readily rivetted either to the web or flanges of them. Illustration No. 4 is made up of four angle bars, with strap bars, say every 4ft., or diagonal bracing suitable to the purpose, to be used either as stanchion or bracing. In illustrations 6, 8, 9, 10, and 11 are shown various sections of stanchions made up of single joists, joists and angles, joists, tees and plates, and joists with one rivetted both sides of web.

The strength of each of the sections can be adjusted either by increasing the size of the joists, or angles and tees, or by the addition of flange plates. The cap and base plates are attached to the shaft by rivetting angle cleats to the webs and flanges to form the requisite bearing surface for the flange plates. In details 12, 13, 15, and 16 are given various sections of stanchions, made up of channel sections and joists, No. 14 being of channels, bars, tees, and plates. These forms of stanchions are applicable for continuing through two or more stories of the building admitting of two or four girder joists bearing at the same level, particularly so the sections Nos. 13 and 15.

Sections Nos. 17, 18, and 19 are made up of flanged quadrant bars, flanged quadrant bars and channels; the diameter of 16 and 19 can be increased and decreased as occasion requires by using smaller or larger sections of channels. Sections 18 and 19, whilst retaining the minimum diameter, can be very considerably increased in strength by adding plain or bulb-shaped tees, plain bulb-shaped angles, or by the addition of plates, either inside or outside of the channel bars.

Section No. 22 is made up of channels and Lindsay's special angles, or plain angles. This particular section was very successfully used in the West Australian Bank, Cornhill. In this particular instance they were 21ft. 6in. long, 11in. diameter, made of four 5in. by 3in. channel bars and four 3in. by 3in. by ½in. angle bars.

In order to suit them to the respective loads



SECTIONS OF STANCHIONS.

the strength of part of them was increased by an additional lin. plate rivetted to the back of the channel on the inside. Two of these stanchions, one the light and the other the heavy section, were tested at Messrs. Kirkaldy's works, and admirably withstood the compressive strain to which they were subjected. Upon the light section 158 tons were applied, and upon the heavy section 237 tons were applied, each of them, together with the caps and bases, being made in the usual manner, that is, without any special preparation for testing. With reference to section No. 16, there is a difficulty in rivetting up these stanchions if of small diameter.

The forms of stanchions shown in sections Nos. 20 and 21 readily adapt themselves to purposes of construction of high buildings, where several floors have to be considered, and supported by the same stanchion. The section can easily be made to suit any number of loads and floors, by either increasing or decreasing the diameter, or increasing or decreasing the sectional area. These sections have found particular favour with the American architects and engineers in the construction of their high buildings from the fact of their easy adaptability to their respective requirements, to their form and construction, and from the fact that they can be readily encased with fire-resisting materials independently of being made up of bars, that are either kept in stock at the mills or can be generally quickly supplied.

The drawn steel columns are made from 4in. up to 24in. diameter and from $\frac{1}{2}$ in. to 1 $\frac{1}{2}$ in. metal in one piece, excepting the flanges forming caps and bases. They are made in lengths not exceeding 21ft. or 22ft., and are generally used in lengths not exceeding in height of one high or two short stories; but when they are superimposed, the single joist girders bear up the flanges, and are attached. When columns of larger diameter are required, and girders either of double joist compound girders or rivetted plate girders are used, the columns are made to seat on the girders, the girders abutting and being continuous, the flanges of the caps and bases being bolted to the girders.

Ornamental caps and bases, either in cast iron or other metal, can be readily adapted to these drawn steel columns, to suit the several styles of Architecture. The great advantage of these columns is that you get the greatest amount of carrying power for the minimum diameter and thickness of metal, and it deserves consideration when space is an object, or where shipment has to be considered. One of these columns was tested at Messrs. Kirkaldy's with most excellent results, the length being 14ft., 7in. diameter, and lin. metal, the calculated safe load being 92 tons. It was tested up to 180 tons, practically without any movement, and no injury was observable to the material under microscopical examination.

Columns shown in details Nos. 23 and 24 are built up of steel plates and T-bars, and curved steel plates for large diameter columns, heavy constructions; or, where they are exposed, their form admits of being increased almost to any diameter and strength. The cap and base flange plates are attached by angles rivetted to shaft, and the flange plates rivetted to the angles. In special cases an additional plate is put on the outside extending from 12in. to 14in. from the ends before putting the flanges on for purposes of additional strength. The steel stanchions combine the principle of the ordinary angle-bar stanchion and the column. The bars are rolled in such a manner as to form a hollow shaft, and placing the metal as great a distance from the central axis as possible. They are made of four bars, or, for additional strength or diameter, plates or bulb bars are inserted between the flanges of the angles. The cap and base flanges are attached to forged bent plates, or angles rivetted to shaft, as the several illustrations show.

These stanchions have been extensively used, as, independently of their strength, comparatively with their diameter and sectional area, also independently of the fact of being easily encased in fire-resisting material, either rectangular or circular shape, to suit the Architect-

ture of the building. The safe loads on these are ascertained by taking one 14ft. long, 6in. diameter, the safe load is 80 tons, and generally, in practice, the full load has been placed upon them, and proved satisfactory. To increase the size of the bases and bearing surface area of the various steel columns and stanchions referred to, to provide for heavy or extreme loads, they rest upon cast-iron bases, formed to suit each special requirement. The cast bases may either rest upon joist foundations or upon adequate stone bases and concrete foundations, the columns and stanchion bases being bolted down to the cast-iron bases.

THE FIREPROOFING OF COLUMNS AND STANCHIONS.

As columns and stanchions carry the greatest concentrated loads found in modern buildings, the proper fireproofing of these becomes a most important subject for consideration; unfortunately, in only too many cases is this slighted or omitted, even to a very dangerous extent, as has been proved in numbers of instances.

Many systems have been introduced, and both the "hard tile," the "porous tile," "terra-cotta," and concrete have been used extensively.

The requirements in the adequate fireproofing of columns and stanchions are:—

1. The material must be indestructible by fire.
2. The material must not be heat-conducting.
3. The material must be so secured to the columns or stanchions that it cannot be dislodged.

The use of hard fire-clay tiles is only to be recommended when such tiles are hollow with a sufficient and proper air-space around the metal column or stanchion, and even then experience seems to show that the hard tile is in no way so satisfactory under great heat as the porous tile. Application of cold water in combination with heat have also proved the hard tile far less reliable in case of conflagration than the porous tile, as the hard tile is very apt to crack off under such conditions. The use of solid blocks of porous tile well bedded against the metal column or stanchion or solid pumice concrete seems to be the most highly satisfactory.

The requirements for fireproofing the interior columns and stanchions by the Chicago ordinance are defined as follows:

1. "The coverings for columns or stanchions shall be, if in brick, 8in. thick; if of hollow tile, one covering at least 2 $\frac{1}{2}$ in. thick.

"If the fireproofing is made of porous terra-cotta, it shall be at least 2in. thick, whether hollow tile or porous terra-cotta is used, the courses shall be so anchored and bonded together as to form an independent and staple structure."

2. "In all cases there should be on the outside of the tiles a covering of plaster with Portland cement, or of other solid cement of equal hardness and efficiency when set."

3. "If plastering on metallic laths be used as fireproofing, it shall be in two layers, of which the first shall be applied in such a manner that the concrete or plaster will cover

the entire external face of the column or stanchion, while the space between the two layers shall not be less than lin.

"The metallic laths shall in each case be fastened to the metallic firings and the plastering, upon same shall be made with cement."

FOUNDATIONS FOR COLUMNS AND STANCHIONS.

In designing the foundations for columns and stanchions for a building, where they rest upon a yielding stratum, proper provision must be made for the uniform distribution of the weight. In cases where the loads vary the foundations should be proportioned according to the different loads, so that the bearing per unit of ground area will be equal, and a uniform settlement of the structure assured. Where the loads are excessive an excellent foundation for columns and stanchions can be formed with rolled steel joists, either in a single bed or more, the foundation for them being prepared by a suitable bed of Portland cement concrete of ordinary depth, then placing the joists thereon.

Where unusual loads are to be supported the joists may be crossed in two or more directions, each at right angles, their distances apart from centre to centre varying from 9in. to 24in., according to circumstances—i.e., length of their projection beyond the masonry thickness of concrete, estimated pressure per square foot, &c. They, however, should be placed at least far enough apart to permit the introduction of concrete filling between the joists.

The most useful application of this system of foundation is on sites where a thin and comparatively compact stratum overlies another of a more yielding nature. By using joists in such cases, the requisite spread at the base may be obtained without penetrating the firm upper stratum or carrying the footing courses down to an unusual depth. In covering the joists with concrete, 6in. should be left at the ends and sides of them and 1 $\frac{1}{2}$ in. to 2in. on top. A convenient way of doing this is to make a plank frame of the same size as the concrete bed, and at the proper height and perfectly level; after this is filled it is made for the next courses and so on, the whole exterior rendered with Portland cement, so that no metal is exposed.

The method of calculation for joists used in foundations may be stated thus:—

The arms or projections of the two lower courses are fixed by the lengths of the upper ones, and by the dimensions of the sub-soil area, hence the question is how many joists are required.

Let y = projecting arm of any course.

a = width of supporting area.

L = total load on footing.

M = bending moment on one side of layer.

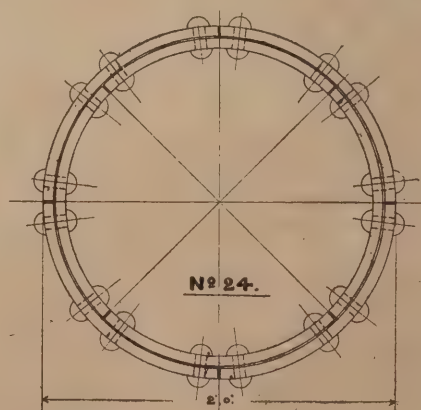
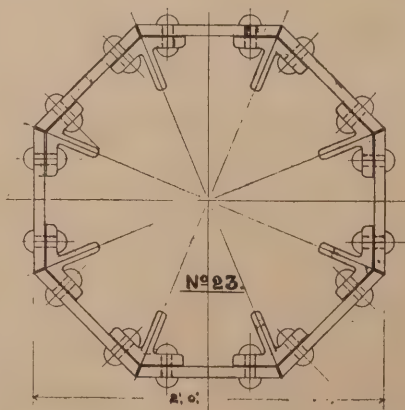
Then the length of joist = $a + y + y = a + 2y$.

Load on $y = \frac{Ly}{a + 2y}$ and since the distribution

of the load on every layer is uniform, we have

$$M = \frac{Ly}{a + 2y} \times \text{lever arm} = \frac{Ly^2}{2(a + 2y)}$$

In calculating the lower course, y becomes a known quantity and M an unknown.



SECTIONS OF COLUMNS.

The usual spacing where three tiers are used is

- 15in. for lower tier.
- 12in. for middle tier.
- 9in. for top tier.

For any other spacing of pressure than given, M can be found from the formula

$$M = P \sqrt{\frac{sb}{12}}$$

When P = the projections in feet for the several tiers of beams.

b = the allowable bearing capacity per square foot of ground in tons.

s = spacing in inches.

The method in regard to the calculation of such footings is still an unsettled question, as some engineers claim that the action of the concrete filling with its tendency to bind the iron and concrete together causes the foundation to act as a whole, and thus possess a moment of resistance much greater than the sum of resistance of the individual layers.

But in view of the uncertainty of such assumption, the method of calculating all movements about the edge of the casting would seem more logical, as well as being on the safe side.

To illustrate this class of footings, one, 15ft. 6½in. square base, was used in the "Marguerite Building," Chicago, for a load of 410 tons. The base of cast iron is 3ft. 6in. by 4ft. resting upon five 20in. joists 100lb. per foot each and 14ft. ¾in. long.

These 5in. joists rest upon fourteen 15in. joists 41lb. per foot each.

The other, with base 15ft. 6½in. by 19ft. supporting two stanchions, is in the same building. The load on one stanchion is 181 tons 8 cwt., and the other 250 tons 16 cwt. Under the cast bases, which are 3ft. 6in. square, are five 15in. joists, each 80lb. per foot, and five 20in. joists, 80lb. per foot, under the cast bases, supporting the light and heavy loads respectively. Underneath these, at right angles, are fourteen 12in. joists, 17ft. 6in. long, resting upon the concrete foundation. In determining the sizes of the joists in any layer, care must be taken to leave sufficient clearance between the flanges to admit of the concrete being rammed in place. Hitherto this class of foundation has been but little used in this country, although it has been used in several isolated cases. In Messrs. Jones and Higgins's warehouse, Peckham, it was very successfully used. A modification of the systems lends itself readily as foundation for columns, stanchions, and piers for buildings, or corner sites, or where the site of the building is of such a nature as necessitates the system being used.

It has been used in the construction of the new premises in the Strand, at the corner of Adam Street. In this instance the joists are framed 3in. or 4in. wide, and rest upon the solid concrete foundation, substituting the usual piers and footings for the front walls. Another instance is in the building of some flats at Tufnell Park. In this case it was not considered advisable, from the nature of the site and the great expense, to take the walls down to the requisite depth for foundation.

Piers about 4ft. square, in Portland cement concrete, were taken down to the solid strata, and upon these piers a framework of steel joists was built, properly fitted and connected together to carry the external and principal internal walls. By this method it will be inferred there is little or no possibility of any one part of the wall subsiding without affecting the general structure.

The foundations, basement columns, &c., are either surrounded by constant moisture or by the wet clay or earth itself. For such positions cement mortar should undoubtedly be used, as from experience it seems the most perfect conservator of metal work.

Of all the ruined castles in Wales, Pembroke is one of the fairest and most majestic. The round tower or keep is a splendid structure, rising cloudwards above the ivy wreaths that cling around its walls, which are 7ft. thick. The banquet hall, the chapel, and the broad courtyard remain to prove the former dignity of the Castle.

Professional Items.

BARNSTAPLE.—A Local Government Board inquiry has been held at Barnstaple relative to an application for sanction to borrow £1677 for a new steel swing bridge over the Yeo at Braunton Road. Mr. Frank Chanter is the engineer.

BIRMINGHAM.—Deritend Branch Library has been opened after extensions. The building has been extended a third by the addition of another bay; the roof has been lowered and the lighting greatly improved; mullioned windows look out upon the street. New furniture has been put in, the walls have been hung round with Arundel Society prints; an efficient system of ventilation has been devised, and a pitchpine floor laid down.

BLACKPOOL.—The foundation stone of a new Liberal Club at Blackpool has been laid. The cost of erection (including the amount paid for the site) will be about £7000, and another £1000 is to be spent upon furnishing.

BOLSOVER.—The old chapel in Cotton Street, and house adjoining, are to be sold, and a new chapel and school and class rooms erected. Plans, &c., have been prepared by Mr. W. J. Morley, of Bradford, and tenders have been accepted from Mr. Oakley, of Bolsover, for mason and brick work, plastering, and slating; from W. Wilson and Sons, of Castleford, for joinery; Messrs. Aves and Houghton, of Mansfield, for plumbing; and Mr. Harland, of Bradford, for painting. The expenditure will be £1800.

CLIFTON.—The Clifton Grand Spa and Hydro has just been opened. The baths have been designed and carried out on lines approved by the late Dr. Hunter, of Smedley's, Matlock, by Messrs. Harper and Harper as architects, and Mr. G. Croydon Marks, C.E., as engineer.

DUBLIN.—An appeal has been made for the improvement of the organ in St. Patrick's Cathedral, to bring it up to date. Mr. Drew, the Cathedral architect, gives his opinion that St. Patrick's Cathedral plan lends itself to such addition as is the reasonable outcome of organ requirements of the nineteenth century, without prejudice to its present perfection of geometric plan and design. He proposes to submit to the Dean and Chapter and Cathedral Board a scheme which may confidently challenge the criticism of architects at large as a fair and reasonable departure in connection with an ancient and historic building. There could not be in principle any inconsistency in erecting in this century buildings in architectural harmony with the old ones on the site, as the Cathedral architect points out, of a vanished Chapel of St. Lawrence, one part of the whole group, and on the site appletted by Archbishop Comyn in 1190 for a treasurer's house, and occupied by it from his time until 1869.

GLASGOW.—Mr. Dobson's High School students, on Saturday last, paid a visit to Ruchill Hospital. The hospital comprises sixteen pavilions, accommodating 408 beds, with acute wards and convalescent wards in addition. The total cost per patient is about £500. The hospital also provides administration block for nurses, doctors, and matrons' rooms, with recreation hall. The buildings are now ready for joiners' finishings, but the contract for the machinery, boilers, and water tower, which is 160ft. high, is still to proceed. The total cost is estimated at £230,000.

GOWERTON.—The new Intermediate and Technical School at Gowerton is well-situated on an elevated piece of ground. The structure is in the Gothic style, and contains an assembly hall, 42ft. by 22ft. clear, four classrooms, cookery room, music room, laundry, manual workshop, chemical laboratory, chemical lecture room, with the usual private rooms for the head-master, head-mistress, and caretaker—affording accommodation for about

120 students. It was designed by Mr. T. P. Martin, Swansea, and has been built under the supervision of Mr. R. S. Griffiths, Tonypany, consulting engineer to the Technical Instruction Committee of the Council, by Messrs. Bennett Bros., Swansea, with Mr. John Lloyd as clerk of the works.

LEEDS.—A home and schools for blind and deaf children is now being erected by the Leeds School Board in Blenheim Walk, off Woodhouse Lane. The building, the plans of which have been prepared by Mr. W. S. Braithwaite, will cover an area of 1200 square yards. The design—a free treatment of the Gothic style—is intended to illustrate the collegiate character of the institution. The structure will be three stories high, with the addition of a good part basement, well lighted from wide areas, and a sub-basement for the special heating and ventilating arrangements. The building has been specially and very carefully designed to meet the requirements of the two departments—the blind and the deaf, and is in this respect unique in character. Each department will be separate and distinct in its working for scholastic purposes, and will be easy of approach from the domestic department. To this end, five separate staircases, leading direct from the ground floor to the top story, are provided. The heating and ventilating will be carried out by Mr. Key, of Glasgow, on the principle in use at Darley Street and Hunslet Lane. The total area of the building is 5000 superficial yards, and it is estimated that, together with the site, it will cost £28,000.

LEICESTER.—At a special meeting of the Town Council at Leicester, the Chairman of the Finance Committee announced that the Council had voted no less than £160,000 for street improvements alone during the past twenty-eight months; had devoted £230,000 more during the same time to the acquisition of parks, lunatic asylum, cemetery, baths, &c., and had furthermore spent £183,000 on the extension of the gas and electric lighting plant, making the huge aggregate of £573,000. At the same meeting special committees were appointed to consider the expediency of acquiring the Leicester tramways, and erecting a block of two-story buildings for the housing of the aged poor at rentals not involving any charge upon the rates. It was also decided to spend about £6200 on the maintenance of the Municipal Technical and Art Schools.

LIVERPOOL.—A new home for the nurses at the Brownlow Hill Workhouse is being erected. The estimated cost of the home, which will allow of the residence of sixty nurses, is £11,350, inclusive of furniture and fittings. The building, which has been designed by and erected under the supervision of Mr. Henry Hartley, of Bristowe Chambers, 8, Harrington Street, Liverpool, comprises basement, ground, first, and second floors. The basement contains a dining hall at the west end 51ft. 6in. by 29ft. 6in., with lavatory, cloak-rooms, and service-room immediately adjoining. On the ground floor there are two large sitting-rooms, one 30ft. by 24ft., and the other 30ft. by 28ft. Arrangements have been made whereby the partition between the two rooms can be readily removed, being constructed with Stone's patent sliding shutters. Thus a room 52ft. by 30ft. can be formed for lectures or other purposes where meetings of the nurses are required. On this floor there are also lavatories, matron's room, and eighteen cubicals, or bedrooms. On the first and second floors there are fifty-six bedrooms, with the necessary linen closets and storerooms. There are bathrooms on each floor. The lavatory arrangements are confined to a sanitary tower on the south side of the building, which is practically isolated from the main building by a ventilated corridor. The general arrangement of each floor is a central corridor 6ft. wide, with the various cubicals or bedrooms and other apartments leading off right and left. At each end of the building is a stone staircase communicating with the various floors, and approached from the hospital side by external entrance. The new home has

communication on the ground and first floors with the existing Nurses' Home by means of a glass-covered corridor; so that the whole nursing establishment, which in all will accommodate about 100 nurses, is brought into direct communication. The walls of the bath-rooms, lavatories, and domestic offices are lined with white-glazed bricks. The building throughout will be heated with hot water, the heating chamber being at the lower part of sanitary tower. Radiators are fixed in the corridors at intervals on the several floors. Special attention has been paid to the ventilation of the building. Although the cubicals are self-contained by walls, the door openings have been carried up to the ceiling, and the upper portion filled in with moveable fan-lights, which will act as ventilators into the main corridor. The vitiated air will thus be carried into the main ventilating system. The whole of the premises are lighted by electricity. The style of the exterior is plain, and harmonises with the main workhouse structure.

LOWESTOFT.—The foundation-stones have been laid of the new Baptist Church on London Road, Lowestoft. The plans, which are the design of Mr. G. Baines, of Lowestoft, and Clement's Inn, W.C., show an elevation of ornate appearance, being in the Gothic style, simply treated. The front will be of splint flints with white brick dressings and red brick gables. The new building provides accommodation for nearly 700 persons. The seats are arranged on a semi-circular plan, so that all hearers will directly face the minister. There will be a nave and aisles, divided by red granite columns with carved stone caps, moulded stone bases; brick arches and clerestory windows above. Two vestries are provided on the ground floor, and a class-room over the south-west lobby, with cloak-room beneath. The pulpit will be of carved stone, in keeping with the general character of the building. The internal dimensions of the chapel are—width, 49ft.; length, 74ft.

LYTHAM.—The new clubhouse of the Lytham and St. Anne's Golf Club has been opened. The Gothic clubhouse has cost approximately £8000, and the furnishing an additional £2000. The house comprises handsome entrance hall, locker rooms, club rooms, dining hall, ladies' club room, and dressing rooms, billiard room, baths, lavatories, offices, and steward's service.

MIDDLEWICH.—The foundation-stone has been laid of the custodian's cottage in connection with the new technical schools and free library. Mr. Worth is the architect, and Messrs. Clarke and Son the builders.

MOSELEY.—A memorial window has been placed in the chancel at the Oxford Road Baptist Church, Moseley. The window, which consists of two lights and tracery, has been treated by the artist in late fifteenth-century style, to harmonise with the large window in the north transept. The subject illustrated in the first light is the finding of Christ in the Temple. In the second, Christ is receiving and blessing little children. The Temple, as well as all the details, have been taken from Holman Hunt's great work illustrating the subject. The work was intrusted to J. Hardman and Co., of Birmingham.

MOUNTAIN ASH.—The foundation stone has been laid of the new Workmen's Institute at Mountain Ash. The plans have been prepared by Mr. Dan Lloyd, Aberbeeg, Mon., late of Mountain Ash. The contract is in the hands of Messrs. C. Jenkins and Sons, Porth.

NEWCASTLE.—Plans of a new improvement scheme for Newcastle have been designed by Mr. Thos. Hanning and Mr. C. T. Marshall. The scheme embraces a new high level bridge across the Tyne, carrying railway lines and roadways, with improved railway connection on both sides of the river, and also street improvements associated therewith both in Newcastle and Gateshead.

OADBY.—A new Baptist chapel has been

built at Oadby. The building occupies a site adjoining the Leicester Road. It is in the Gothic style, and when completed will accommodate about 400 people. Below the chapel is a schoolroom for Sunday-school purposes. The total cost will be over £2000. The architect is Mr. G. Brown.

PUDSEY.—Plans have been prepared for a new Conservative Club. They show a building in the Renaissance style of Architecture, with an imposing and extensive frontage to the main street. The building, together with the furnishing, is estimated to cost about £4000. The plans have been prepared by Messrs. Holton and Fox, of Dewsbury.

RUSHDEN.—The large additions to Messrs. Cave's factory are rapidly nearing completion. Messrs. Moseley and Anderson, of Northampton, were the architects for the work, and the contractor was Mr. Robert Cosford, of Northampton, the contract price being £7700.

STRANORLAR.—The altars which have been erected in the Catholic Church of Stranorlar by Messrs. O'Neill and Company, Brunswick Street, Dublin, are fine specimens of the sculptor's art. Standing beneath a richly fluted window is the high altar. Under the altar table is a recumbent figure of the dead Christ after the model of John Hogan. It is of Carara marble, and is flanked by carved panels of the same material. Forming a reredos, and extending to a considerable height, on either side of the altar, is an arcade of Sicilian marble, with panels bearing suitable religious mottoes. The chief feature of the altar is the throne above the tabernacle, which rises to a good height, and is gabled, crocketed, and ornamented in a more florid style than the rest of the altar. Side altars, dedicated to the Blessed Virgin and St. Joseph, are situated in each aisle.

STRANRAER.—The Ivy Place United Presbyterian Church, just opened, is built on the site in London Road formerly occupied by the old church. The new building is designed in late decorated Gothic style, the walls being built of dark blue dressed whinstone, with hewn work of a cream white stone from Prudham Quarry, Northumberland. The main gable faces the street, the principal entrance being in the centre by a wide double doorway with richly moulded arch, and tympanum filled with sunk panelling. On each side are mullioned windows with traceried heads lighting the vestibule. On the western side of the main gable the gallery staircase is carried up in an octagonal tower, the lower stages of which are kept very plain. In the upper parts the angles are marked by boldly moulded shafts, and the upper or belfry stage has an arcading of deeply moulded openings with cusped traceried heads. This turret is roofed with a steep conical roof, covered with red tiles, and finished with a crocketed lead finish and wrought iron vase. The side elevations are in keeping with the front, having a series of two-light windows in the lower portion and large four-light windows with traceried heads in the upper, the windows next pulpit end being carried up to a much higher level under transept gables. In the interior the church is divided into nave and side aisles by stone piers and arches; the piers also carrying the galleries which are placed behind them at the sides, and supported on steel girders. The pulpit window has been designed and executed by Messrs. Stephen Adam and Son, Glasgow. The large five-light front window is a beautiful specimen of stained glass art by Mr. Joseph Miller, Glasgow. The total cost of the church, exclusive of the gifts mentioned, will be about £4000. The work has been executed by the following contractors: Mason, D. Purdie, Stranraer; wright, D. Milligan, Ayr; plumber, J. Johnstone and Son, Glasgow; plasterer, James Torrance, Stranraer; slater, Wm. Auld and Son, Ayr; glazier and painter, S. Kemp, jun., Hamilton; heating, Mackenzie and Moncur; gates and railings, McCallum and Hope; gasfitting, Milne and Son; and upholstery, Francis Smith, all of Glasgow. The architect is Mr. John B. Wilson, Glasgow.

Views and Reviews.

STANFORD'S MAP OF METROPOLITAN RAILWAYS.

An excellent map of the metropolis has just been published by Edward Stanford, 26 and 27, Cockspur Street, Charing Cross, S.W. In size, 40in. by 27in., and with a scale of two inches to the mile, it clearly defines the whole of the railways and tramways throughout the metropolitan area, the routes of the new lines now in course of construction and those for which Parliamentary sanction is sought, also being prominently marked. All the streets and thoroughfares are shown, and the principal are named, and the map is one that should prove of great service to architects, surveyors, &c. Evidently much care has been bestowed upon the work to ensure accuracy and clearness. The map is published at three prices—6s., 10s., and 12s.

Under Discussion.

GEOLOGY AND ENGINEERING.

Before the Institution of Civil Engineers, Professor Boyd Dawkins lectured on the "Relation of Geology to Engineering." The two, he pointed out, were so intimately interwoven that sometimes it was impossible to separate them. The structure of the earth ought to form an essential part of the education of a civil engineer. Geology stood to engineering in the same relation as faith to works. The success or failure of an undertaking depended largely upon physical conditions falling within the province of geology, and the works of the engineer should be based on the faith of the geologist.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

The annual meeting of this Society was held at the Albert Hall, Leeds. Mr. George Corson, who occupied the chair, was re-elected president, and Mr. Tweedle and Mr. T. Butler Wilson were appointed vice-presidents. The members elected to the council were Messrs. Hobson, Braithwaite, France (Bradford), W. Carby Hall, Bevers, C. B. Howdill, G. W. Atkinson, and A. E. Kirk, together with Messrs. E. Birchall, W. H. Thorpe, E. J. Dodgson, Perkin, Bulmer, and Watson (Wakefield). Mr. F. W. Bedford was re-elected secretary.

WOOD CARVING.

Lecturing recently at Carpenters' Hall on "Wood Carving—Its Design and Practice," Mr. Lewis F. Day, lecturer and examiner on design and kindred subjects at South Kensington, spoke of the necessity of the designer and the artificer working harmoniously together. The ideal artist was he who could carve out his own designs, but such men were scarce. They would generally find two men associated upon a piece of work, which to be perfectly successful must be produced by unity of feeling between them, and no desire on the part of one to "boss" the other. As to the carving itself, Mr. Day emphasised over and over again the necessity for simplicity, which it was a great mistake to undervalue. It was also a mistake, he declared, to labour after effect. As soon as work ceased to tell, it was time to stop. No amount of work beyond that point would add "finish," but, on the contrary, would detract from it. Duffers, of course, might like to efface the mark of their tools, but when they were expert in the use of them, the marks would add a characteristic texture to the work which was the glory of wood carving. A multitude of splendid examples of beautiful effect gained by least labour were at this juncture shown by means of lantern slides. Proceeding, Mr. Day expressed the opinion that the carver must "treat" his subjects, and could not submit them directly as they appeared in Nature. The history of the art itself, and the character of the medium necessitated that, a remarkable instance of the potency of the

latter being the superiority of panelling over all other forms of wood carving. To design appropriately, one must bear in mind that this class of work was the most suitable and effective, because it was the most natural, being suggested by the shape of the trunk of the tree.—A series of instructive pictures of a carver progressing through the various stages of a design told their own tale when thrown upon the screen, and interior views of noted work at the Honourable Society of Gray's Inn and in the Charterhouse were shown to illustrate how effective even crude work was when properly used.

HAMPSTEAD ANTIQUARIAN SOCIETY.

This Society, which was established last year, has already secured considerable support from residents interested in architectural and archaeological subjects connected with the Hampstead district, which abounds with landmarks of historic value. In these days of suburban building extensions there is a great necessity for the protection of ancient buildings and places of interest from needless violation, and it is not therefore a matter for surprise that architects, artists, and antiquaries should endeavour to combine for the purpose of using their influence to prevent vandalism. Amongst those supporting the movement are:—Sir Walter Besant, M.A., F.S.A., Dr. Brooke Herford, Messrs. Henry Clarke, J.P., L.C.C., Gilbert Dalziel, Frederick Haines, F.S.A., Karl Blind, A. Ridley Bax, F.S.A., Cecil Clarke, George H. Bibby, F.R.I.B.A., and Mr. Charles J. Munich, F.R.Hist.S., who is honorary secretary and treasurer of the Society.

THE SCIENCE OF ENGINEERING.

The seventh annual dinner of the Newcastle Association of Students of the Institution of Civil Engineers was held a few days ago at Newcastle. Sir John Wolfe Barry, K.C.B. (President of the Institution of Civil Engineers), occupied the chair, and responding to the toast of the evening, said the profession of a civil engineer was one of the most responsible, honourable, and onerous of all the professions; and he was quite sure that the younger members would recognise that, to put it on its proper basis, and raise it to its proper status among other professions, it was necessary that the entrance to it should be made like that to other learned professions, by means of an examination, which would give every man who passed it proper credentials. In the future, they would have to grapple with new problems of all kinds, and it was essential that members of the profession should be equipped for the battle as well as the young men in other countries. They ought not to be behind foreigners in the matter of knowledge. It could not be thus without a full scientific examination. He did not wish to put too high a value upon scientific education or examinations, but he would not belittle them. In civil engineering work, they required both practical and scientific training, and no civil engineer in the future would be properly equipped for the battle of life without scientific education and practical experience. The change that had been made must tend to the good of the profession at large. The Institution was in an extremely flourishing condition. He did not think that there had ever been a time when the Council was more in touch with the members in all parts of the world than it was at present. He thought they might look forward to a prosperous career for the Institution. He also thought that the profession was in a good condition. Although they heard complaints of want of work from time to time, he did not think it was pressing upon them greatly at present, and not nearly so hardly as upon some other professions. At no time in his career had the civil engineering profession or the Institution been in better condition than at present.

A NEW church, to seat about 700 persons, is about to be erected at Abertely (Mon). The architect is Mr. C. B. Fowler, F.R.I.B.A., of High Street, Cardiff.

Enquiry Department.

CUBING TIMBERS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you, through your Enquiry Department, show me the correct way to cube timber, viz., 4in. by 4in., 9in. by 2in., and 2in. by 4in.—Yours, G. F. P.

To find the cubic contents of sided timber, multiply the three dimensions together continuously, for instance, the contents of a deal 12ft. long by 9in. by 2in. would be found thus: First reduce the 12ft. to inches, viz.,

$$144 \times 9 \times 2 = 144 \text{ in.} \times 9 \text{ in.} = 1296 \times 2 = 2592 \div 1728 = 1\frac{1}{2} \text{ cubic feet.}$$

The number of cubic inches in a cubic foot is 1728. The rule generally employed to find solid contents of rough hewn timber is: Take half the sum of breadth and depth, in the middle of length, square this half sum (i.e., multiply it by itself), and multiply by the length; but if very irregular or crooked, take the girth at several points, add together and divide by the number of measurements, for a mean girth which multiply by the length, taken straight from end to end.

TENDENCIES IN ART.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—The "chapel somewhere Clapham or Wandsworth way, by Philip Webb"—referred to in the editorial note to the letter of "Design," in last week's BUILDERS' JOURNAL—is attached to Lady Adeline Smithers' Deaconesses' Home, on the south side of Clapham Common. You have omitted two of Philip Webb's works in London which are readily accessible to the student—Mr. Val Prinsep's house, 1, Holland Park Road, Kensington, adjoining Lord Leighton's house, and the group of offices, No. 19, Lincoln's Inn Fields, sandwiched between the Equity and Law Life Assurance and the Inns of Court Hotel. The Saturday Review recently suggested Mr. Philip Webb should be made a Royal Academician, but it is to be doubted whether Mr. Webb would think this a compliment, or that he would accept the honour if it were offered him. Mr. Webb, like the hero of one of Kipling's ballads, "doesn't advertise," and would probably be content to live and die, like the French poet Piron, "pas même académicien."—Yours, J. H.

LIMEWHITING IRONWORK.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you kindly inform me of a medium for the preparation of a recently painted cast-iron surface to take limewhite? Do you think size thickened with finely-ground whiting would be effective?—Yours truly, B. F. C.

A good binder for the purpose mentioned is boiled linseed oil, in the proportion of 1 of oil to 10 of limewash; to quicken the drying 2 of patent size may be added—not more, as it has a tendency to flake off. The above proportions depend upon the quality of the lime, and it will be advisable to test a small portion before mixing a quantity. If it is not compulsory for sanitary reasons to use quicklime, whiting will be found to make the best wash; it is more easily applied, covers better, and is not so destructive to tools. If the latter lime is used, substitute borax for the boiled oil; select a dry or warm day for the application, as if condensed water is enclosed by the coating, it will eventually swell, and blister off the white-wash.

THE will, dated July 18th, 1896, of Mr. Charles John Shoppee, F.R.I.B.A., of John Street, Bedford Row, and 41, Mecklenburgh Square, who died on November 18th, has been proved by Mr. Charles Herbert Shoppee, the son, and Mr. Robert William Dibdin, of 23, Red Lion Square, the executors, the value of the personal estate being £8362 0s. 5d. gross and £6683 4s. 3d. net. He gives all his architectural books to his son, and 20 guineas to Mr. Dibdin. Subject thereto he leaves all his property upon trust for his wife, Mrs. Elizabeth Shoppee, for life, and then to his son absolutely.

Trade and Craft.

MESSRS. WYCKOFF, SEAMANS, AND BENEDICT.

MESSRS. Wyckoff, Seamans, and Benedict, makers of the well-known Remington Standard Typewriter, have opened a West End branch establishment at 253, Oxford Street, W. The growth of the business has necessitated this step. The firm has recently introduced new foolscap and brief models to increase the scope and general efficiency of their machines.

LEEDS INFECTIOUS DISEASES HOSPITAL.

In the competition recently decided for the best scheme of warming, ventilation, etc., for the new Infectious Diseases Hospital, Leeds, a Liverpool firm has proved successful, their scheme and tender having been formally adopted by the Corporation of that City. The successful competitors are Messrs. Dargue, Griffiths, and Co. Limited, of 15, Lord Street, Liverpool, who, a little more than a month ago, were awarded the first premium for a similar scheme at the new Edinburgh Infectious Diseases Hospital, Colinton Mains. This success is a tribute to Messrs. Dargue, Griffiths, and Co., who were in competition with firms of the highest repute.

PALMER'S PATENT TRAVELLING CRADLE.

In the painting and redecoration of buildings, bridges, and various structures, the task has often been rendered not only difficult but very dangerous owing to the want of some apparatus from which the workmen could perform with safety and efficiency. This want appears to have been supplied by Mr. Edwin Palmer, of 250, Westminster Bridge Road, S.E., who is the inventor and furnisher of a Patent Wire-Supported Travelling Cradle, which has already been extensively used with successful results. The platform, or cradle, upon which the workmen stand is about 6ft. in length, and is suspended from a wire rope at the top of the building or in any other position, and being slung on pulleys, the men can easily run it along to the required place as the work proceeds; and, of course, it can be raised or lowered as occasion demands. By this simple yet effective arrangement the necessity for a lot of scaffolding or a number of ladders is entirely obviated, thus economising time and expense. It should be explained that the men on the cradle have thorough control over the apparatus, and without any aid can, by means of the ropes and pulleys, fix themselves in any position. In order to ensure safety, the wire rope used is tested to carry eight tons, although the weight of the apparatus, including two men with it, is less than four hundredweight. Palmer's patent travelling cradle was employed in repainting Southwark Bridge, where it was fixed over the central arch, a span of 250ft. It was also used at the Hibernia Chambers, London Bridge, on a stretch of 96ft., to repair a cornice.

JARRAHDALE JARRAH.

This wood paving system has grown to be exceedingly popular, which says much for its durability. A pamphlet published by the London Agency, at No. 1, Fenchurch Avenue, E.C., contains some interesting particulars on the subject. Jarrahdale Jarrah comes from the tree Eucalyptus Marginata, found in abundance on the Darling Ranges of Western Australia, and the proprietors of it hold 250,000 acres of forest from which to produce their supply. Figures are given to show that Jarrahdale Jarrah holds the premier position, both for quantity and durability, above other kinds of timber found in the locality. It has already been very extensively used, not only in Australia, but in England and other countries. Several of the main thoroughfares in the metropolis have been paved with it, and experts have expressed opinions entirely in its favour. Particular note has been taken of the material laid down in the Westminster Bridge Road, in Lambeth, and Waterloo Road, and the reports have been highly satisfactory; in fact, the

Lambeth Vestry is so strongly impressed with the durability of the Jarrah blocks, that up to March, 1896, nine miles of the roads in that parish had been paved with this material. It is also used by other vestries of London, as well as by the authorities in the principal provincial towns. But Jarrahdale Jarrah is valuable other than as a road paving material. About fifteen years ago a large new dock was built in Port Adelaide, South Australia, and Jarrahdale was the only wood used in its construction. That dock is said to be still in splendid condition. This wood has also been employed on other docks and piers. We may add that the Hull Corporation has accepted a further tender of the Jarrahdale Jarrah Forests and Railways Limited, for 1200 loads of Jarrahdale, being all the Company could get forward in time to meet Hull's requirements, owing to the heavy demand for their timber.

MESSRS. SUTCLIFFE, STATHAM AND CO.

The Bury Art Gallery Committee have given the order for the ventilating and warming of their new Art Gallery and Public Library to Messrs. Sutcliffe, Statham and Co., Cathedral Corner, Fennel Street, Manchester. The system to be adopted is the "low pressure Plenum," with double ducts—one for warm air and one for cold air. Messrs. Woodhouse and Willoughby, of Manchester, are the architects, and tenders for the other work in connection with the building have not yet been invited. Messrs. Sutcliffe, Statham and Co. are a new firm who have recently established themselves, but they are well experienced in warming and ventilating; all the members of the firm and staff were directors, managers, or engineers. They are making a new ventilating fan under Mr. Sutcliffe's patent. It is not unlike the well-known Blackman type in general appearance, but, under close examination, it will be noticed that there is a distinct difference in the shape of the blade, which is so designed that while the efficiency near the periphery is fully maintained, that of the centre is rendered more effective, and the discharge from the fan is centripetal in place of centrifugal. It also has the merit of running absolutely quietly, and for this reason, if for no other, it should be in great demand for schools and other buildings where a humming fan cannot be tolerated.

A NEW PATENT GRANITE TILE.

One of our representatives writes: "Passing through the covered way from the station at Keswick to the Keswick Hotel a few days ago, I noticed that the tread was a specially easy and comfortable one. There seemed quite a firm grip of the foot, such as one fails to notice when one is walking upon the tiles that are so frequently employed for the purpose of paving in such places. Upon examination and inquiry, I ascertained that the material used is a new patent made by the Threlkeld Granite Company, at their quarry and works at Threlkeld. It is really neither more nor less than a granite tile. There is also cement in the tile, and the result is a combination which for strength and durability would be hard to beat. The specimens of the tiles laid at Keswick are evidence enough of the easy applicability of colour to the material, and the design is a pleasing and effective one. The colours are perfectly clear and distinct, and the substance is capable of employment in any colour and for any purpose for which tiling may be usually employed. There is ground

for no small satisfaction in the fact that there is now a new industry for the county of Cumberland. Under the skilful and enterprising management of Mr. Harkewitz, the managing director of the Company, there can be no doubt of the great future awaiting these tiles.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BANGOR.—For erecting the Hamilton-road Presbyterian Church, Bangor, co. Down, for the Committee of the Church. Mr. W. J. W. Roome, architect, Belfast:—
Robert Caiwell ... £8,195 | James Kidd ... £7,294
John Lowry and Son ... 7,975 | Jas. Colville, Bangor* ... 6,591
*Accepted for first blocks.

BELFAST.—For erecting the Shankill-road Mission Buildings, for the Committee of the Mission. Mr. W. J. W. Roome, architect, Belfast:—
John Lowry and Son ... £16,972 | W. J. Campbell & Son ... £13,454
Wm. G. Callen ... 15,000 | Courtney and Co. ... 13,249
McLaughlin and Harvey* ... 13,590 | [All of Belfast.]
*Accepted.

BELFAST.—For erecting a villa, Adelaide Park, Belfast, for Mr. Wm. Clarke. Mr. W. J. W. Roome, architect, Belfast:—
W. McConnell ... £1,245 | J. Killen ... £1,137
H. George ... 1,150 | R. Crawford (accepted) ... 940
[All of Belfast.]

CARLISLE.—For the erection of electric lighting station, &c., for the Corporation. Mr. H. C. Marks, C.E., 36, Fisher-street, Carlisle:—
Jno. Laing, Denton-street, Carlisle ... £7,668 8 1
[Includes all trades.]

CATERHAM.—For erecting a Soldiers' Home, Caterham:—
Quintenton ... £2,350 | Ward ... £1,939
Harmann ... 2,135 | Thompson ... 1,845
Cheeseman ... 2,100 | Vaughan, Caterham* ... 1,449
*Accepted.

COVENTRY.—For new drainage works and roads, Edgewick, Foleshill, Coventry, for Messrs. Peach Bros. Messrs. Harrison & Hattrell, surveyors, Coventry:—
J. Isaac & Sons ... £1,589 7 6 | McCarthy & Co. ... £1,244 10 0
T. G. Golby ... 1,420 0 0 | H. Mason & Son, Leicester* ... 1,242 18 5
Kelley and Sons ... 1,260 0 0
*Accepted.
[Surveyor's estimate, £1,400.]

CROYDON.—For pulling down and rebuilding Nos. 20, 21, 22, 23, Surrey-street, Croydon, for Mr. J. Mann Taylor. Mr. J. William Stevens, architect, 21, New Bridge-street, City, E.C. Quantities supplied:—

White and Co.	£4,850 0 0	S. Hart	£3,987 0 0
Lordan and Son	4,444 0 0	A. Bullock	3,974 0 0
Potter	4,377 2 11	Saunders	3,903 0 0
Whitehead & Co.	4,325 0 0	Bryan and Son	3,895 0 0
W. Smith & Son	3,990 0 0	E. P. Bullock & Co.	3,879 0 0
D. W. Barker	3,989 0 0	S. Page	3,700 0 0

DUDLEY.—For the erection of theatre (Birmingham-road, Dudley), for Mr. Clements. Mr. A. Ramsell, architect, Dudley:—

R. M. Hughes	£11,582	Bradney and Lloyd	£10,982
F. Lindsay Jones	11,565	Henry Gough	10,950
Thomas Skett	11,488	C. A. Horton	10,950
H. Willcock and Co.	11,440	H. Dorset and Co.	10,880
John Dallow	11,350	John Guest and Sons	10,854
Henry Cave	11,195	J. H. Whittaker & Co.	10,750
J. Harley and Son	11,000	Dudley (accepted)	10,750

FRINTON-ON-SEA.—For the erection of school buildings, for the School Board. Mr. S. T. James, architect, Frinton-on-Sea, Essex. Quantities by Messrs. Kemp-Welsh and Thomas, Bournemouth:—

J. McKay	£1,795	J. W. Dixon	£1,537
Balham and Co.	1,775	E. West	1,500
Myall and Ellis	1,760	Shillitoe and Son	1,490
H. W. Gladwell	1,574	T. B. Pitcher	1,450
T. Canham	1,558	H. J. Linnell, Frinton* ... 1,447	

*Accepted subject to Education Department's consent.

GRAVESEND.—For alterations and alterations on the Clarendon Royal Hotel, for Mr. R. L. Cosh. Mr. D. Carmichael, architect, London. No quantities:—

Multon and Wallis	£1,125	H. W. Martin*	£1,025
Tuffee	1,090		
S. Ransom and Co., London*			£271 10

*Accepted for bar fittings.
GREAT MISSENDEN.—For the erection of detached villa residence at Potters-row, Great Misenden, for Mrs. Wright. Mr. Guest Luckett, Aylesbury, architect:—
Senior and Clarke, Wendover (accepted).
[Lowest of five tenders received.]

HIGH WYCOMBE.—For the erection of buildings, &c., for the Electricity Company. Messrs. Moxam and Son, architects, High Wycombe, Bucks:—
H. T. Dickens ... £2,597 | H. Flint, High Wycombe* ... £2,383
J. T. Harris ... 2,500 | B. W. Martin ... 2,300
C. H. Hunt ... 2,493 | Churns ... 1,833
Nash and Sons ... 2,459
G. H. Gibson ... 2,450
*Accepted.

HULL.—Accepted for rebuilding the "Swan" Inn, including Faience work and polished front, Beverley-road, for Messrs. Moor and Robson's Breweries, Limited. Messrs. Freeman, Son, and Gaskell, architects, Albert-chambers, Carr-lane, Hull:—
Thos. Goates, Hull ... £1,255 15

HULL.—Accepted for rebuilding the "Duke of Cumberland," Hull. Messrs. Freeman, Son and Gaskell, architects, Hull:—
E. Good and Sons, Limited, Hull ... £833 6 5

ILFORD.—For the erection of laundry buildings (exclusive of boiler house, shaft, and fittings) for the South Essex Sanitary Steam Laundry, Limited. Mr. Horace J. Cropper, architect, Ilford:—
Snawin, Bros., and Co. ... £2,367 | A. Miles ... 1,770
J. Sparks and Son ... 2,227 | W. Collins ... 1,680
W. Johnson* ... 2,052
*Accepted.
[Architect's estimate, £2,000.]

KILKENNY (Ireland).—Accepted for proposed alterations and additions to business premises, Upper John-street, for Mr. A. J. Wilsdon. Mr. James Byrne, C.E., architect, Carlow:—
E. and R. Warren, Blackrock, Dublin ... £994

LEEDS.—For the execution of sewerage works, for the Hunstley Rural District Council. Mr. Sam Shaw, C.E., Dewsbury:—
J. Bentley ... £1,023 3 9 | S. Neale ... £859 19 1
H. Wilson ... 1,017 16 7 | J. Slinger & Sons ... 859 12 10
W. Simpkins ... 905 8 4 | J. Keightley, Huns-
M. Arundel ... 881 16 2 | let* ... 833 0 0
W. Doleman ... 867 8 10
*Accepted.

LEIGH (Essex).—For the erection of two class-rooms and cloak rooms, etc., at the Boys' and Girls' Schools, Leigh-on-Sea, for the Leigh School Board. Mr. Frank E. Smes, architect, 12, West Smithfield, E.C. Quantities by J. E. Goodchild, 81, Finsbury-pavement, E.C.:—
Hammond and Son ... £1,797 | Thorp & Son, Leigh* ... £1,610
E. West ... 1,750 | Bullock & Patten ... 1,444
Symes ... 1,730
*Accepted.
[Architect's estimate, £1,650.]

LISBURN.—For the extension of Rosevale Home Laundry, Lisburn, Ireland, for Mr. T. J. Porter. Mr. W. J. W. Roome, architect, Belfast:—
D. McHenry ... £2,420 | J. Vernon and Son ... £1,320
Lisburn (accepted) ... £1,320

LLANHILLETH (Wales).—For the erection of hotel, &c. Mr. C. T. Evans, architect, 8, Queen-street, Cardiff:—
D. Lewis ... £2,500 | W. H. Ingleson ... £2,240
D. J. Davis ... 2,400 | A. Parfitt, Newport ... 2,230
Williams and Thomas ... 2,274 | Mon. (accepted) ... 2,230

LONDON.—For alterations at the "Prince of Wales" public-house, Harrow-road, W., for Messrs. Ferris & Co. Messrs. Eedle & Meyers, architects, Railway-approach, London Bridge:—
Lascelles and Co. ... £2,930 | H. and F. Fearman ... £2,735
Antill and Co. ... 2,890 | Nightingale ... 2,723
Beer and Gash ... 2,794 | H. Burman and Sons ... 2,403
William Smith ... 2,790 | Edwards and Medway ... 2,347
Martin D. Wills ... 2,750

LONDON.—For alterations on the "Princess Royal," Sidney Square, Mile End, for Mr. Loneragan. Mr. D. Carmichael, architect:—
S. Ransom & Co., Britannia Works, Kensal Road, W. (accepted) ... £260
No competition.

LONDON.—For alterations on "The Castle Tavern," Camberwell-road, S.E., for Mr. Henry T. May. Mr. D. Carmichael, architect:—
G. and F. Kent ... £1,320 | T. Stevens ... £1,217
H. Wall and Co. ... 1,290 | S. Ransom & Co., Ken-
A. A. Webber ... 1,273 | sal-road (accepted) ... 1,220
[No quantities.]

LONDON.—For alterations on "The Red Lion," Floral-street, W.C., for Mr. John Miller. Mr. D. Carmichael, architect:—
S. Ransom and Co. (accepted) ... £175

LONDON.—For pulling down and rebuilding Nos. 40 and 41, Foley-street, W., for Mr. Thomas J. Boulting. Messrs. Clark and Hutchinson, and Percy A. Boulting, joint architects, 23, John-street, Bedford Row, W.C. Quantities supplied:—
Holloway Bros. ... £3,175 | Smith and Co. ... £2,987
Burman and Sons ... 3,121 | Antill and Co. ... 2,970
Patman and Pother ... 3,000 | Anley (accepted) ... 2,920
ingham ... 3,000

LUTON.—For the erection and completion of a theatre at Luton, Bedfordshire, for Mr. Reginald F. Turner. Mr. C. Herbert Shoppes, F.R.I.B.A., architect, 22, John-street, Bedford-row, London, W.C. Quantities by Messrs. Morris, Evans and Son:—
G. Smart ... £16,363 12 | McCormick & Sons ... £13,967 0
S. F. Halliday ... 14,318 0 | C. Miskin and Sons ... 13,470 0
T. and E. Neville ... 14,309 0 | W. G. Dunham* ... 13,375 0
F. Gough and Co. ... 14,244 0
*Accepted.

R. Moreland and Sons, Ltd., for constructional iron and steel work, not included in the above, accepted.

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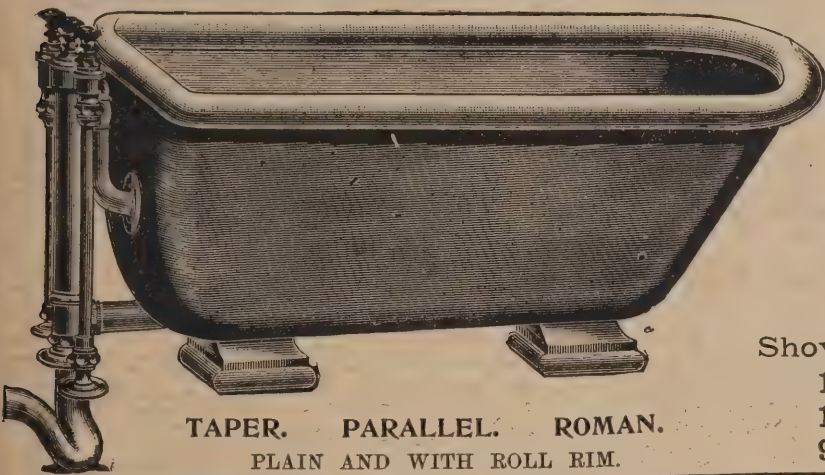
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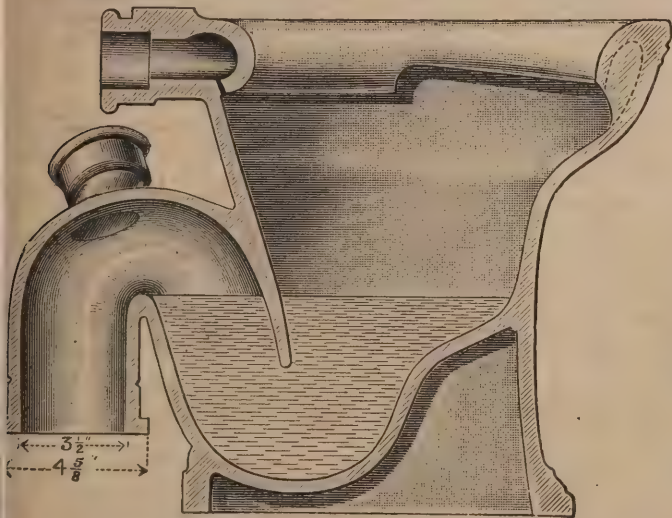
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FOUNTAINS, STATUES,

ELECTRIC AND GAS PILLARS,

BROSELEY ROOFING TILES,

"LIGHTMOOR" BRAND.

LONDON.—For erecting a new theatre, Kennington Park-road and South-place, S.E., for Mr. Robert Arthur. Mr. W. G. R. Sprague, architect, Fitzalan House, Arundel-street, Strand. Quantities by Mr. A. R. Henderson (late Brunsden and Henderson), 47, Pall Mall, S.W.:

	Bath stone.	Portland stone.
Martin, Wells, and Co.	£38,810	£39,887
J. Shillito and Sons	37,250	39,059
G. Longlen and Sons	36,190	38,455
S. R. Lambie	36,325	37,330
C. Gray Hill	36,270	37,210
H. and E. Lea	35,756	36,701
Patman and Fotheringham	35,691	36,717
W. Downs	35,365	36,190
McCormick and Sons	35,338	36,369
Beer and Gash	35,275	36,255
H. Burman and Sons	35,245	36,269
F. Grover and Sons	35,196	36,236
F. and H. F. Higgs	35,160	36,180
Harris and Wardrop	34,954	35,874
H. L. Holloway	34,770	35,730
Kirk and Randall	34,558	35,330
Foster and Dicksee	34,332	35,491
Tyrie and Sons	33,217	34,327
Stimpson and Co.	32,595	34,835
Wilkinson Bros.	31,340	33,553
Walter Wallis accepted	29,841	31,955

LONDON.—For rebuilding Nos. 82, 83, and 84, Leather-lane, Holborn, E.C., for Messrs. Harvey & Thompson. Messrs. Goodwyn & Sons, architects:

Sloman	£7,600	Bywaters	£4,835
Brading	5,135	Patman & Fotheringham	4,663
Ansell	4,869	Wm. Smith	4,596

LONDON.—For erecting a dwelling-house and laundry in Clifton-street, Latimer-road, W., for Mr. H. W. Chalkley. Mr. Frederic W. Hingston, architect:

Dainton and Son	£1,996	King and Sons	£1,869
Ferris Bros.	1,900	Ham and Son	1,780

LONDON.—For new shop-fronts to Nos. 5, 7, 9, 13, 15, and 17, Westbourne-grove, W., for Mr. Henry Dobb. Messrs. Treadwell and Martin, architects, 2, Waterloo-place, S.W. Quantities by Mr. H. Williams Mellor, 19, Craven-street, Strand, W.C.:

Styles and Sons	£2,614	G. H. and A. Bywaters	£2,142
Ashby Bros.	2,251		

LONDON.—For alterations and new internal fittings to "Shelley's" Hotel, Albermarle-street, W., for Mr. F. A. Rhodes. Messrs. Treadwell and Martin, architects, 2, Waterloo-place, S.W. Quantities by Mr. H. Williams Mellor, 19, Craven-street, Strand, W.C.:

Wright and Co.	£3,447	3	4	Ashby Brothers	£3,083	0	0
Waring and Co.	3,336	9	8	Bishop	3,025	0	0
Atkinson and Co.	3,176	0	0				

WORCESTER.—For the execution of water supply works, Clifton-on-Teme, for the Martley Rural District Council. Mr. F. Redman, C.E., Newport-street, Swindon. Quantities by the engineer:

A. Wills and Son	£1,912	14	6	W. H. Smith and			
G. Yarnold	1,748	1	8	Son, Clifton,			
T. Vale	1,687	6	6	Bristol*	£1,290	8	5

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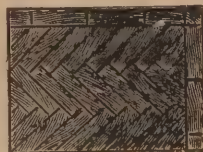
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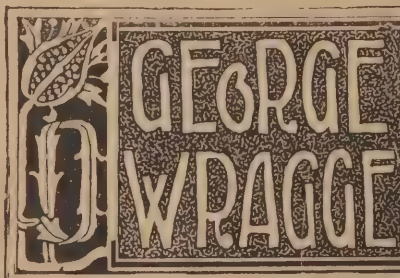
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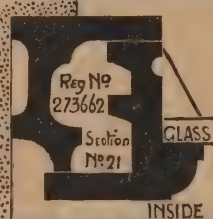
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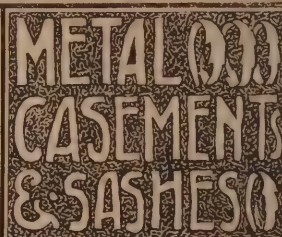
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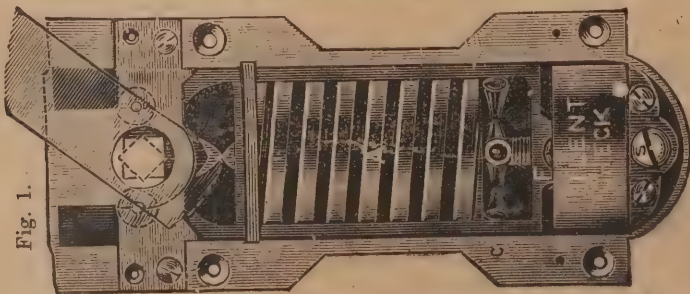


Fig. 1.

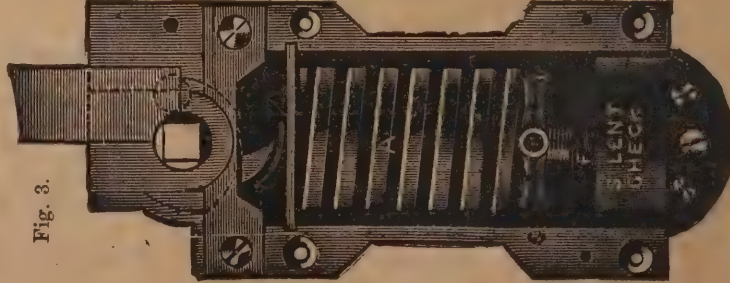


Fig. 3.



TO OUR READERS.

We have pleasure in drawing attention to the inclusion, in the present issue, of a second lithographic plate in accordance with the announcement of the management to give two double inset sheets at frequent intervals. This increase, in scope and interest, of "The Builders' Journal," which has been prompted by the extraordinary increase in circulation, and the constant growth of the advertisement pages, must be as satisfactory to our readers as it is gratifying to ourselves. "The Builders' Journal" already makes a very wide appeal to the Architectural Profession and the Building Trades alike, its features embracing as they do a series of signed architectural and constructional criticisms, two illustrated special articles—one upon an artistic and another upon a constructional subject—Surveying and Sanitary Supplement, for sanitary engineers and surveyors, with illustrated technical articles, besides our news-notes under the heading "Bricks and Mortar," our information concerning current building under the title of "Professional Items," our "Enquiry Department," our complete list of Contracts and Competitions Open, &c. We are sure our readers will appreciate our latest enterprise in extending the usefulness of "The Builders' Journal."

An Architectural Causerie.

A SUM of £2,500,000 The Home Office Buildings. has been granted by Parliament for the erection of new Government offices, and the completion of South Kensington Museum. Would it be possible to put aside, out of this colossal sum, a few pounds, to finish the present Government offices in Whitehall, which have been standing so long incomplete? If you walk down the opposite side of the way, you see the crowning balustrade stop off short at the angle pavilions, and these features finished with what was once intended to be a temporary iron railing. As the building stands now, it is something like a statue without a head, but no one seems to mind. Complaint is often made of the tameness and lack of outline of this front, but no one seems to realise that the design is

incomplete, that if these angle features were taken up, they might give just the relief required. If you walk down Downing Street you find the beginnings of an arcade, or some such feature, projecting at right angles to the building. Is it intended that it shall remain like this for ever? It does seem only commonsense that, before spending such a tremendous sum on new buildings, those already begun should be finished. The present state of things is so utterly illogical. It is conceivable that the public takes no interest in fine buildings, that all it requires is a convenient structure, in which the

It is possible that many architects of the present day do not admire the appearance of this building—do not consider that it would be satisfactory even if completed. It certainly can hardly be called "picturesque," or "quaint," or "original," or by any of the other catch-words of the Art cant of the day; but the next generation may think different, and it is probable that few of those who belittle it could do as well themselves, and quite certain that none of them would like their own designs to be treated in the same way. Though this feeling may partly account for professional indifference, it can hardly be



CREDITON CHURCH. THE NAVE, LOOKING EAST. BY G. J. F. HOOKWAY.

business of the country can be carried on with comfort. Such an attitude is consistent enough—but then, why spend so much money on the façades of this building? It would have been possible to provide a much more convenient structure for half the cost, if convenience and economy were the only considerations. But if there are other things to be considered, and it really is desired to have a creditable building, why stop short in this way after spending so much, and cripple the design for the sake of an extra fourpence. It takes an Englishman to do these things.

supposed that the public has reasoned about it to this extent, and made up its mind that the building is not worth completion. The public, probably, has simply never noticed it. It is permitted to ask whether, if the head of the statue of Charles I. at Charing Cross had been omitted, the public would have been any the wiser? Whether, if the cross on St. Paul's was removed in the night, anybody would notice its loss? It is a question how far we are responsible for such indifference. We habitually put up such a crowd of characterless buildings, that even an architect is puzzled to know what they express.

It is small wonder, then, that the public attaches no meaning to them at all, and so takes no interest in them. If a complete building means nothing to it, doubtless an incomplete one means as much.

A. R. J.

London Riverside Churches.*

It may be supposed that Mr. A. E. Daniell has been encouraged by the success of his previous book on the City churches; for if the case had been otherwise he would hardly have appeared so soon with "London Riverside Churches." The author's own preface conveys a clear idea of his intention, which is to gratify those, on the one hand, to whom buildings are nothing but buildings; and those, on the other, who venerate particular churches because of great names associated with them. If Mr. Daniell had gone further afield, he would have found Cowley at Chertsey, but even now, beginning at Kingston, he has had enough to do, it may be supposed, to condense his material. A feature of the previous work, and one, to our thinking, invaluable, was the index which it contained. So immense is our monumental history that the list of proper names in that volume filled thirty-two pages. As we had then the opportunity of congratulating the author, we must now regret its omission. An index there is, it is true, but so scant are its contents that one turns to it only to be disappointed. Supposing, however, that some particular building is dear to the reader, and that therefore he makes the volume his own, he will find, in the pages which concern him especially, as compact a chapter of architectural and monumental history as could be desired. If it is not particularly readable (was there ever a handbook that was?), it is, nevertheless, a desirable work to possess. Its interest is for those more especially who inhabit the banks of the Thames, or whose proximity to it facilitates business. The London of to-day is nearly all extra-mural, and the Thames, from Blackfriars to Henley, is in reality little more than an alternative highway, devoted either to business or pleasure. The churches richest in monuments are those of Richmond, Twickenham, Chiswick, Chelsea, Westminster (St. Margaret's), and Southwark (St. Saviour's). Amongst the most notable names that occur for one reason or other are those of Edward Alleyn, Richard Baxter, Francis Beaumont, William Blake, Vincent Bounce, John Bunyan, Thomas Campbell, Lord Fred. Chas. Cavendish, William Caxton, Geoffrey Chaucer, John Dryden, John Evelyn, John Flaxman, Ugo Foscolo, Thomas Gainsborough, David Garrick, Grinling Gibbons, Oliver Goldsmith, John Gower, William Hogarth, Theodore Hook, Samuel Johnson, Edmund Kean, Sir Godfrey Kneller, Christopher Marlowe, Philip Messinger, John Milton, Thomas Otway, Samuel Pepys, Alexander Pope, Mrs. Rich (Cromwell's daughter), William Shakespeare, Sir John Suckling, James Thomson, Horace Walpole, Sir Christopher Wren, Edward Young, and Johan Zoffany. We conclude with an extract from the author's very excellent preface. That he is on the whole a dependable guide may be taken for granted. "The edifices which I have thus grouped together are rich in interest, and that of a very varied kind. They claim the attention alike of the student of Architecture and of the student of our history of literature. The former will view with delight the noble Early English work which he will find in St. Saviour's, Southwark, and will admiringly contemplate the

fine examples of the Perpendicular period presented to him in the churches of St. Margaret, Westminster, Stepney, and Kingston. In the church of St. Clement Danes he will do homage to the genius of Wren, and in its steeple he will observe the delicate art of Gibbs. Hard by are Gibbs's two greatest achievements—the churches of St. Mary-le-Strand and St. Martin-in-the-Fields. Lower down the river the peculiarities of the bolder, though less refined, Hawksmoor may be studied at St. George's-in-the-East, at Limehouse, and at Greenwich; while Archer's stately church of St. Paul, Deptford, cannot fail to be admired. Among edifices of recent construction, the rebuilt parish churches of Fulham and Chiswick—more especially the latter—must evoke warm commendation, and the new nave of St. Saviour's, Southwark, will be acknowledged to be worthy of the grand mediæval work with which it combines in forming so magnificent a whole. There is here no want of matter to engage the enquirer, whether his tastes be artistic or literary."

E. R.

THE WESTMINSTER IMPROVEMENT SCHEME.

BY ERNEST RADFORD.

IF the unification of Greater London is still a dream, it is yet one of the noblest ideas that we have, and as such is worth entertaining. The City itself, the centre of England's wealth, is almost inconceivably small, for along by the river, between the Tower on the east and the Ludgate, its extent is only two-thirds of a mile. Taking this as its base, and following the irregular line of the Wall, it will be found that the whole is included within the arc of a circle that at no point is more than a few hundred yards from the Thames. A truly magnificent and appealing idea is Sir Walter Besant's of extending the dominion of our constitutional rulers—the Lord Mayor and his aldermen—to the extremities of Greater London. The redeeming feature of our constitution is its easy adaptability to circumstances when resistance is proved to be useless; and what Sir Walter proposes would appear to be eminently practicable. To talk of ending what can be amended is agreed to be absurd in this country, and it is not a little surprising that such an inspiring suggestion has attracted so little attention. The foregoing remarks are introductory merely, and apply to the general subject—the extension of London's rule—but what now we have to consider is the propriety of the application that is to be made for a Parliament Act which will enable a private company to improve a portion of London according to its own ideas, as to how this may be done with the greatest advantage to the holders of shares. Our opinion expressed shortly is that there is clearly an opportunity here of improving the general appearance of Westminster from the point of view that is, or should be, obtained by coasting via Grosvenor Road and Millbank Street. The position will be at once understood by the reader who has as much of the map of London before him as the present occasion requires. He will have on his left the newly-erected Tate Gallery, and will wonder how long it may be before a respectable road connects it with Whitehall? The Embankment stops short, as we know, at Westminster, to be continued again beyond Chelsea Bridge, and to him who merely loafs by the river and dreams there would appear to be nothing easier than to connect the two works by embanking the piece between. He has omitted to notice perhaps that the Houses of Parliament, being right in the way, would in any case break the line at this point, and has probably no idea of the usual expense of undertakings like this, which involve the purchase of wharfage, and land at so many pounds, shillings, and pence, to the inch. It should be explained that whatever is done

will only be done by degrees, and that there is no present opportunity of realising the idler's dream of interminable boulevards. There is, as a matter of fact, some property here which is known to be purchasable, and the question that presses upon us is whether it shall be obtained by the people of London through their representatives, or by a dozen self-seekers through their's. The Bill giving powers to this Company will be opposed when introduced to the House by the representatives in Parliament of the County Council, and there is every reason to hope that they may be successful, for the principle involved affects the whole aspect of London—the London that is to be. If we allow this to pass, we shall have helped to establish a dangerous precedent in favour of piecemeal undertakings being sanctioned by law, and must face the possibility in this particular case of the land by the river being expropriated, in subsections to as many private adventurers as can scrape funds together. If the feeling of pain were limited to the parts of the body affected it would not find expression in speech as it does. With map and provisional plan before me, I have carefully studied the matter, and also gone over the ground, but am not prepared at the moment with any alternative scheme, nor do I suggest that a better could be engaged on the work than the architect whose services have been secured; but certain it is, that he would be happier if employed by ourselves on this same piece of land. "Cabined, cribbed, confined," as the guardian of so many interests must be, he must not be regarded as if he had a free hand in the matter, and was at liberty to commit his visions of London to paper, as Wren was after the Fire. Mr. Priolean Warren, who has an eloquent article on the subject in the Fortnightly Review of last month, would experience just the same difficulties if placed in the same position. He would be pitted, in spirit at least, against his employers, and if ever he gained a point it would be by fighting hard for Art's sake. It, fortunately, is not a question of merit as between architects, but one a great deal larger, involving, as I have said, the future of London. Mr. Warren has materially helped a good cause by what he said. It is proposed in the following number to consider the proposal in detail.

(To be continued.)

ACADEMY ARCHITECTURE.

With the May number of "The Architectural Review" will be issued a special Academy Supplement, in which will be given reproductions of the principal architectural works on exhibition at this year's Royal Academy. The number of these drawings which have been sent to us for reproduction either in "The Architectural Review" or in "The Builders' Journal" is quite unprecedented, and we are confident that the Architectural Room at Burlington House will this year receive greater recognition, in the way of illustration of exhibits, than ever before. The extraordinary unanimity architects throughout the kingdom have shown in selecting "The Architectural Review" or "The Builders' Journal" as the medium through which to reproduce their Academy drawings, is a clear indication that our publications are recognised by the Profession as the architectural journals of the day.

* "London Riverside Churches." By A. E. Daniell, author of "London City Churches." With illustrations by Alexander Ansted. Price 6s. A. Constable and Co.

CREDITON AND ITS DISTRICT.

I.—CREDITON CHURCH.

By G. J. F. HOOKWAY AND A. L. COX.

THE history of Crediton dates far beyond that of the Norman Conquest, for here, towards the close of the seventh century, was Winfrith, better known as St. Boniface the apostle of the Germans, born. Crediton then was a Saxon settlement having its dwellings and cottages and many smaller buildings together with the great hall for the Saxon leader.

The Parish Church, dedicated to St. Mary the Virgin and the Holy Cross, at once the soul and glory of the place, is a large cruciform structure consisting of choir of five bays, with aisles and clerestory and eastern Lady Chapel, nave of six bays with aisles, clerestory and transept and massive central tower rising to a total height of 92ft., a south porch over which is a parvise, and further eastward there is a large rectangular building which was formerly the Chapter House, but now used as vestries, etc. The Lady Chapel probably occupies the site of the Saxon Cathedral which afterwards became the see of Devonshire for 140 years. Of the character and design of this ancient building we know little, neither have we any written records referring to it, but it is certain that Boniface founded a church here.

The present church is of much interest and is mainly of the Perpendicular period, but on closer examination there can be seen remains of a much earlier building. On reference to the plan the Norman work is seen in the lower stages of the tower and the transept walls—of

the Early English period there is more remaining, viz., the Lady Chapel, and what was formerly the Chapter House. The decorated work is very little, consisting of two arches between the eastern wall of the choir and the Lady Chapel walls, and also the jambs of three windows. The nave and choir are wholly of Perpendicular work, together with the greater part of the masonry in the south transept. The top stage of the tower with the embattled pinnacles is also of this period.

It will be seen at a glance that the main character of the church is Perpendicular, the choir being the earliest portion of that style, and dates from 1409-16; the nave dating from 1416 onwards. In considering the various styles in which the church is built, the remaining Norman work demands our close attention. The central tower is carried on four massive piers, and, judging from their general character, date from about 1150; the capitals have rudely carved birds standing on the necking; the caps of the north-west pier have the chevron ornament peculiar to the style, whilst another cap on the same pier has two snakes rudely carved; the caps on the other piers are of the usual cushion form. The bases to the shafts are very good Late Norman work. The north-west pier contains a newel staircase leading to the upper stages of the tower, and the doorway is of this period. Of the Norman work in the transepts the most that remains is in the west walls, against which is built modern stair turrets (see plan) leading to where stood the old galleries. The buttresses at the eastern and western angles of the north transept are plain and flat, and project only 6in. from the face of the wall, they are massive in character and of good ashlar work. The middle or ringing chamber of the

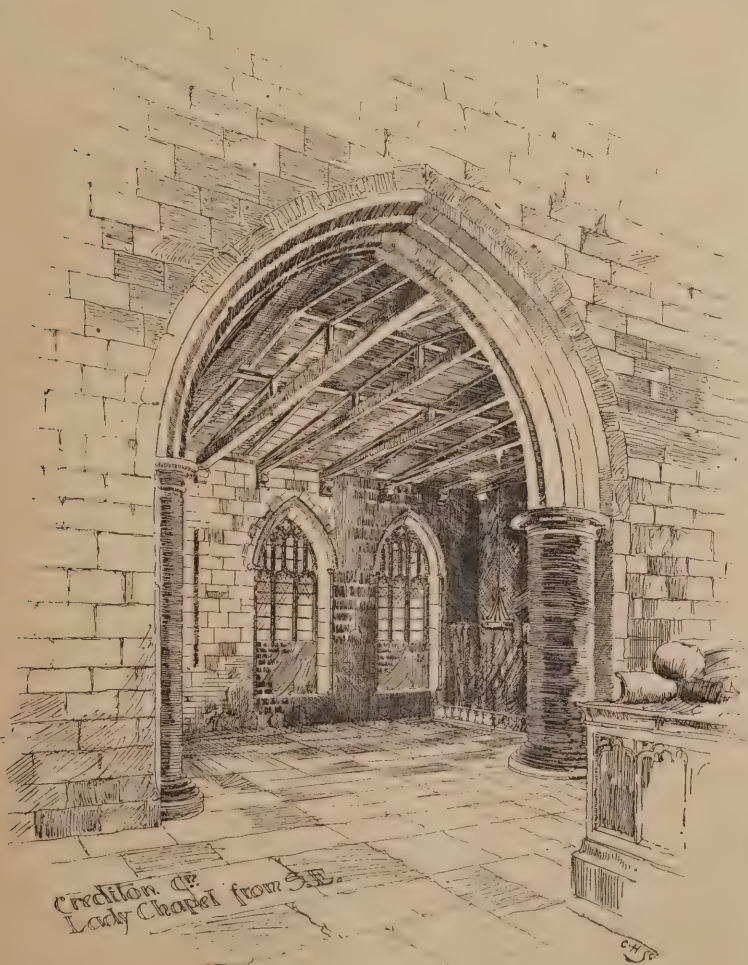


tower is of Norman work, having in its east, south, and west walls two single light windows with semicircular heads: in the north wall there is only one window, the stair turret occupying the greater portion of the wall space where the other window would be. The whole of the Norman work shown on the plan is contemporary with the great transeptal towers at Exeter Cathedral, which were in progress with other parts of the building at the time.

During some excavations when the Lady Chapel was used as a grammar school, a double chamfered plinth, above which was a roll or scroll mould, was discovered, and marks what probably may have been the angle buttress terminating an eastern wall. The question arises: Did this buttress terminate the eastern end of the Norman choir? The presence of the roll or scroll moulding tells us that it is of later date than this period, and it will be seen, on reference to the plan, that there is considerable Early English work beyond the transepts, and we have every reason to believe that the east walls of choir and choir aisles are of this period. This being the case, we are inclined to think that this work is Transitional, and marks the angle of a retro-choir. Should this be so, the Norman choir may have terminated in a line with the ancient Chapter House.

We will now turn our attention to the Early English and Decorated portions of the building. The Lady Chapel, by far the most interesting portion of the whole fabric, is mainly built of the former style, but the shafts, with their caps and bases, and curtain arches of the two easternmost windows, and the east window, are of Decorated work. As shown on the plan, the east end, with the exception of the tracery of the window and the upper portion of the gable, is of the Early English period. On gaining the exterior we notice that the angles of the building are chamfered and stopped. These are, doubtless, Early English work, and the double plinth at the base of the east wall and returning round the buttresses, together with the irregular coursed rubble walling, is not unlike that used by the late Norman builders.

The two remaining windows have Early English jambs, and it is surprising to find that despite the fact that these windows, having been filled in in Perpendicular times with tracery of that period, and the building having gone through so many changes, that these old jambs remain to the present day. On the north and south walls just above the decorated responds which carry the arches opening into the choir aisles are two Early English shafts. What their original purpose was it is at present difficult to assert, for they do not project beyond the face of the wall as in the ordinary manner, but are in a chase so that the face of the shaft is flush with the wall. It is doubtful if they were vaulting shafts as only these two remain, no traces of others can be found.



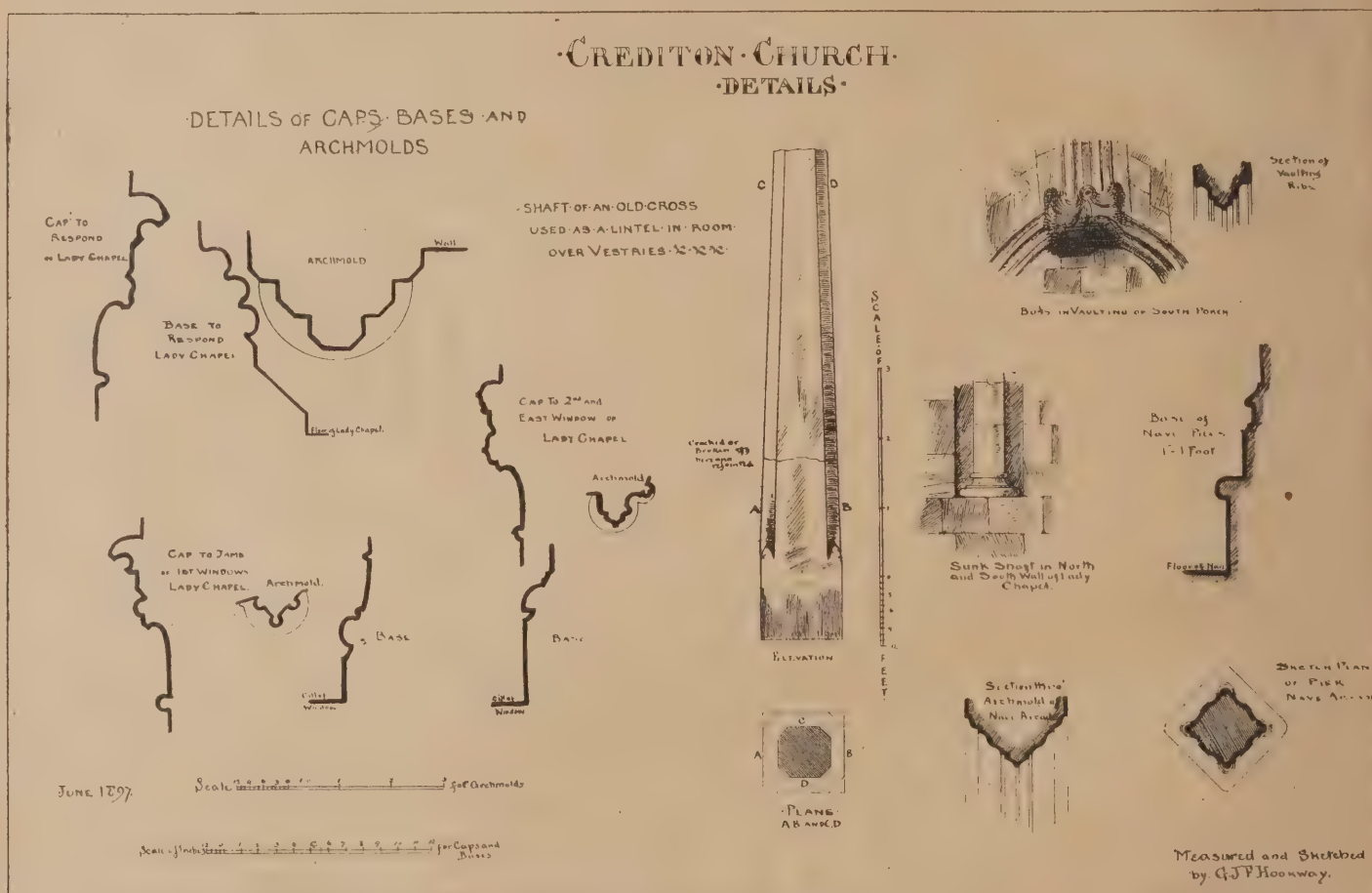
Crediton Ch.
Lady Chapel from S.E.

The arches by which the Lady Chapel is entered from north or south aisles are Early Decorated and well-proportioned. Below the cap of the north-east respond are traces of colour bearing an inscription, but nearly obliterated. With regard to the east wall of the choir it is doubtful to say definitely, but it appears to be Early English. Near the present roof of the Lady Chapel are traces of a former and lower roof besides the cill of an early east window. On the north side of this wall are the blocked up remains of a small door which probably opened into a chamber used as a reliquary. Below this door are the remains of a corbel which probably partly carried a stone step leading on to the reliquary floor. About this time we learn that Crediton Church was rich in relics, and it is possible that a structure of this kind existed, for the door is placed on a level with the high altar. The existing portions of the Early English work date from 1194-1206. At this time the Lady Chapel was in course of erection at Exeter Cathedral, under the supervision of Bishop Marshall, who had a house at

gonal granite shaft of an old Perpendicular cross, such as are common to this part of Devonshire. In another room of the same building, called the governor's room, there are many pieces of the old parish armour and massive oak chests. The armour is very interesting, and would not look amiss if arranged on some wall or walls of the church. The second stage of the tower is of Early English masonry, and starts from a deeply chamfered sill; there are two windows on each face of this stage, resembling those of the east and west wall of the desecrated Chapel of St. Lawrence at the end of the town. The jambs are chamfered, and the heads have equilateral arches, with the labels running as a string course around the tower; on either side of these windows are trefoil-headed niches of the same date, with chamfered jambs. Large beams cross each angle of the tower, and from their appearance and position were intended to carry a wooden spire. The tower is covered with a flat roof, and finished with a perpendicular parapet and large octagonal pinnacles at each angle. The bells are eight in number,

than the nave. The aisle windows are set back with a deep hollow moulding which starts from small circular shafts, the bases of which rest on a stone seat which partly fills the recess under each window. The whole of the tracery in the church is of Beer stone, with the exception of the jambs, which are of Thorverton trap, resembling in character the material of which the church is built.

The roof is lead covered and entirely modern. The old lath and plaster one of churchwarden date was taken down and the present oak roof takes its place. The original roof, which was very flat and greatly enriched with carved bosses, fell into decay, very probably through the procrastination of much needed repairs, that came too late to be effectual, and to the lack of funds. This roof was in existence when the parishioners bought the church, some fragments of the rafters and carving were to be lately seen in one of the vestries. Much of this roof was wantonly used in providing fuel for the preparation of the annual dinner of the twelve governors. This was done until forty years since, when the governors



Crediton, and in all probability influenced the works.

On again referring to the plan, the large rectangular structure east of the south transept is seen to be of Early English date. This building is contemporary with the Lady Chapel. On the north side of the entrance door in the west wall may be seen built in a double piscina, and on reference to the sketch it will be readily seen that it is incomplete—either it is not in its original position or else it has been partly cut away to allow for the present door to be made. From the south choir aisle may be seen two decorated arches, now blocked up, and which originally opened in where is now the priest's vestry, and in the room immediately over this the moulding and half the soffite of an arch may be seen. This structure may have been a chapel, but in all probability it was the Chapter House, for such a building existed when the half-ruinous church was bought by the parishioners.

In the room above the priest's vestry there is a large fireplace spanned by a lintel which, on closer examination, proves to be the octa-

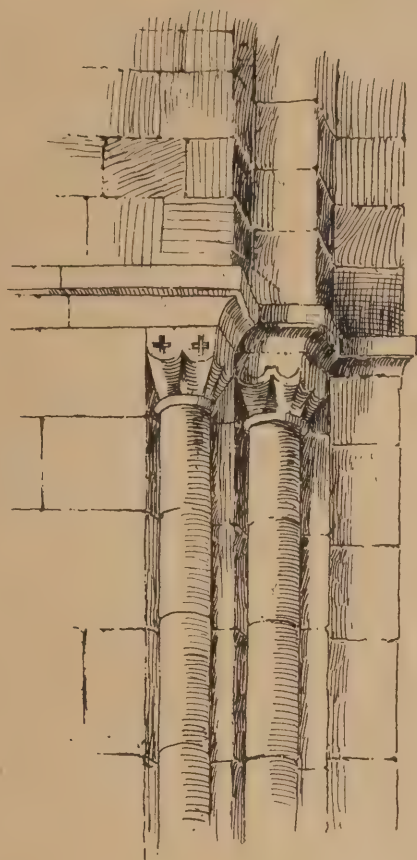
and were cast in 1774, except the tenor, which dates from 1814. The clock chimes every three hours.

At the dawn of the fifteenth century the building was in such a ruinous condition that it could scarcely be used as the parish church. In 1409 Bishop Stafford ordered the rebuilding to be commenced. The choir was the first portion of the church to which the builders turned their attention, and was designed with a light and lofty clerestory, each window of four lights, and similar in pattern to those in the aisles. On reference to the exterior view, a fair idea may be formed of the character of the work. Nearly all the tracery has been "restored," and the present windows are of Late Perpendicular design. This, somehow, does not seem right, as most of the ancient work was Early Perpendicular. There is a marked difference in the windows of the clerestory of the choir and those in the nave, the former being narrower than the latter; and it also makes a pleasing difference in the wall space, while, at the same time, it proves that the choir was of a different date

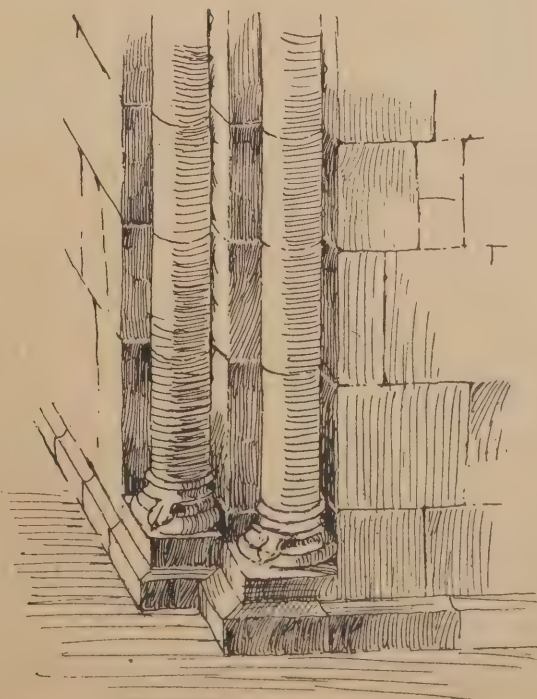
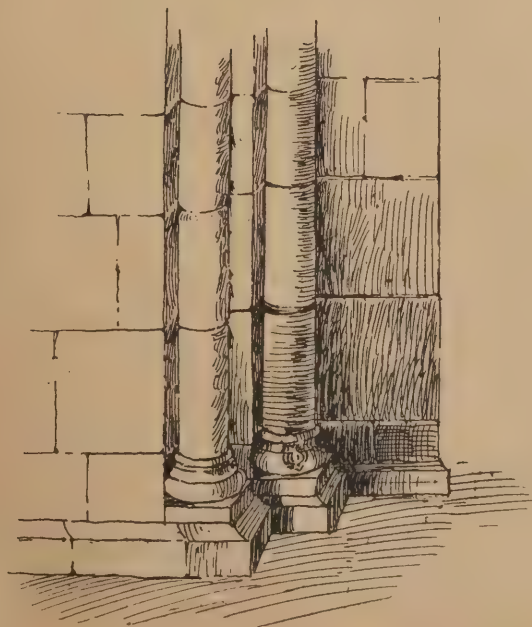
used the room over the vestries called the governors' room, where the annual feast took place. There are only a few bosses of this roof remaining, these are kept in the library over the porch.

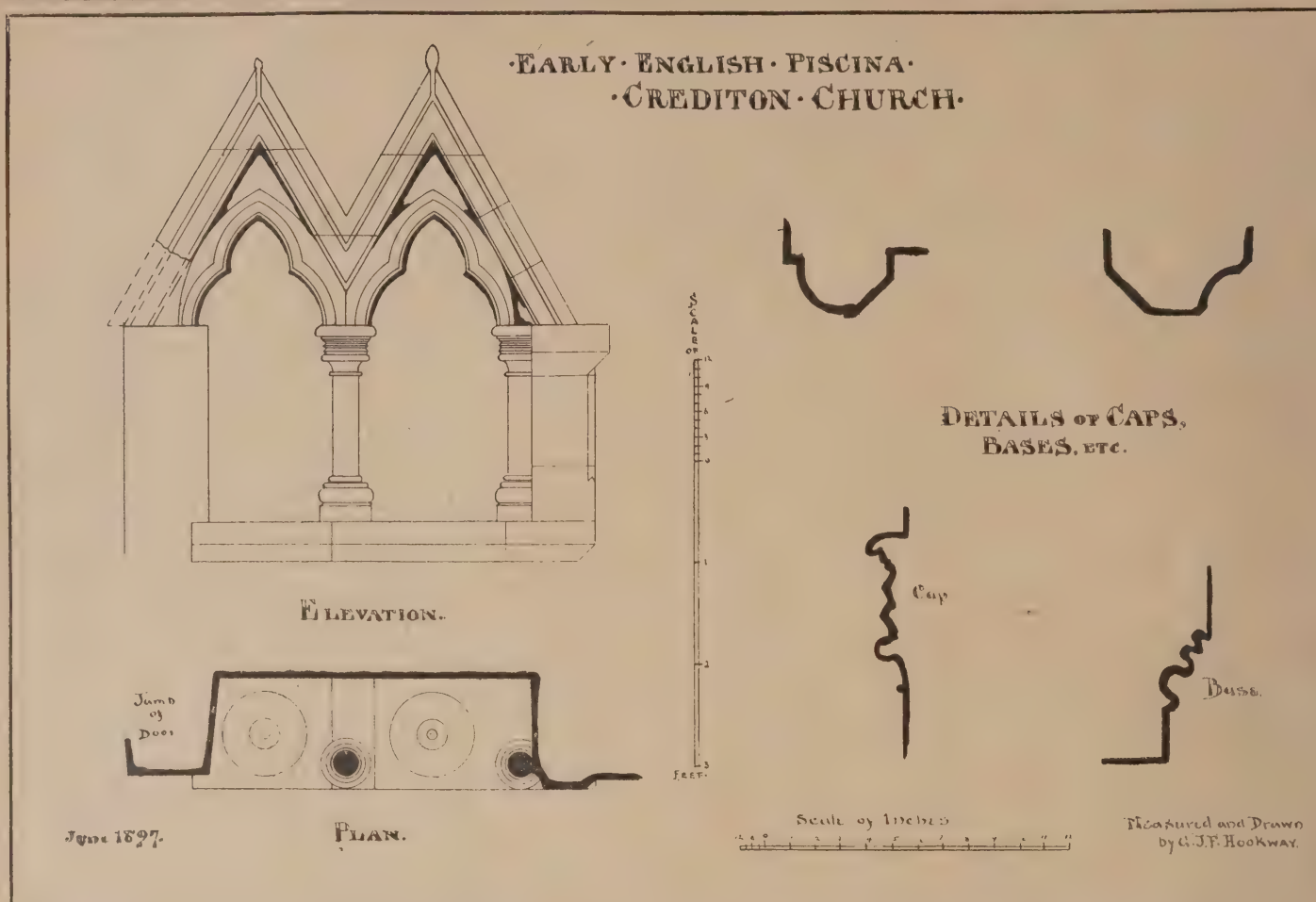
The east and west windows are very large, each of eight lights, the tracery being Early Perpendicular. The west window is almost an exact copy of the east, with very little alteration.

On returning to the choir, which was finished in 1415, the remains of the sedilia call for our special attention; it is situated as usual in the easternmost bay of the south aisle. There are three divisions of equal height, each with rounded panelled backs. Nearly all the carving is gone, and the whole much mutilated and disfigured. There is much colour remaining, mostly red, with slight touches of green and gold in places. At the back is a kind of altar tomb recess, this being enriched with panel work similar to the other side. The base of this tomb is richly arcaded and crocketed, the back over the slab or table being similarly treated. Above rise



DETAILS OF
NORMAN CAPS AND BASES
• CREDITON CHURCH •





canopies with traceried and crocketed beads. The surmounting cornice is richly treated with carved figures. The cornice resembles in character that on the tombs of Bishops Bronescombe and Stafford in Exeter Cathedral. The canopies were the work of the last-named bishop, circa 1395 to 1419. The date of the sedilia is about this time also.

Stafford pressed and encouraged the rebuilding of the church and choir, and the whole was completed during the prelate's episcopate. The south porch in the third bay of the nave aisle is of two bays and vaulted, the ribs and bosses being good examples of Perpendicular work. The vaulting is of Beer stone, the shafts brought down on to the stone seats on either side the porch. Above is a parvise used as the library, being reached by a staircase which opens into the nave.

We will now turn our attention to the monuments which the church contains. We know from documentary evidence that some of the early bishops were interred here, but no portion or any traces whatever of their tombs have yet been found to mark the spot where either of the nine bishops were buried, either in the fabric itself or the adjacent churchyard. Of the monuments that remain and demand our notice, the most interesting is that of Sir John Stully (a sketch of which is reproduced). The tomb bears traces of colour and is much defaced, the lower part is of different date, probably part of another tomb long ago destroyed; the panelling on the sides and end is of late Perpendicular work.

In the easternmost bay of the choir and on the north side are two elaborate and lofty monuments in the Renaissance style. The first is to the memory of Sir William Perrain, an eminent Puritan. This is an interesting monument, and contains much decoration, with good arabesque panelling and quaintly carved serpents. He is represented in his scarlet judge's robe, with the coif on his head, and a chain of SS round his neck. The second monument is that of one of the Tuckfields, of Shoebrook, to whom the property went on the death of Sir William Perrain, whose tomb we have already described.

In the churchyard opposite the south porch

there is a fine Perpendicular base of what in all probability was the churchyard cross, it is of Ham Hill stone, and, though much defaced and unfortunately turned upside down, it bears traces of sculpture. On looking about to discover the shaft belonging to the cross we find there is one in the room over the priest's vestry, and used as a lintel, which spans the fireplace; it only remains to mention that this shaft measures 7ft. in length, is 14in. wide, and tapers to a width of 9in., and it is doubtful whether this shaft belonged to the base above described. The shaft is of granite, and has been cracked or broken about little more than half-way. We trust at some future date this cross and the one in the "Town Green" at the west end of the town will be restored. There is nothing of interest in the churchyard, but a few years ago some interesting old buildings on the north side were pulled down to enlarge it.

(To be continued.)

A CHILDREN'S HOLIDAY HOME for 100 children is to be erected at Clacton-on-Sea. Mr. Charles Bell, 3, Salter's Hall Court, is the architect.

THE Governors of Richmond School (Yorkshire) are considering plans for the enlargement and improvement of the present school-house, which stands in the picturesque grounds of the Friary.

A LOCAL GOVERNMENT BOARD inquiry has been held into the application of the Town Commissioners of Newry for a loan of £6000, for the purpose of building working-class lodging-houses.

MR. F. FOX and Mr. W. G. R. BOUSFIELD, 99, Gresham Street, E.C., are the architects for the extensive alterations that are about to be carried out at premises in Commercial Street belonging to the Birmingham Vinegar Brewery Company.

THE ancient almshouses of the Worshipful Company of Coopers, in School House Lane, Ratcliff, which were erected in 1539, are being demolished in order to make room for the extension of the Free Trade Wharf and other business premises adjoining.

AMONGST NATURE AND ARCHITECTURE.

BY JOHN SNOWDEN.

IN a paper on "An Artist's Notes Amongst Nature and Architecture," read at Bradford, Mr. John Snowden gave Art priority over literature, because, he said, Art existed ages before letters, as was shown by researches into the origin of the Egyptian hieroglyphics, thoughts being at first expressed by the figures or fact with which they actually corresponded. It was only when, in course of time, the inconvenience of so slow a process in the delineation of ideas became obvious, that the first marks or lines of object-drawing were made to stand for the whole subject. The sign, however, being constantly written, became less and less like that small part of the picture which it was intended to suggest, and the original design ultimately dropped out of view. He remarked that almost every object around us was subject to

THE INFLUENCE OF ART FOR GOOD OR EVIL

and it behoved those who possessed understanding to impart to others the faculty of discerning the good from the bad, and of being able to appreciate to its full extent the good, the true, and the beautiful. The manufacture of textile fabrics, the decorations appertaining to everyday life, and the common objects of utility, down to the merest piece of crockery, tended to show what a wide influence Art must have. There was a close affinity between Art and Architecture. Whilst the architect perhaps felt a keener delight in structures of a bygone age, the artist would be in close sympathy with him, and would not miss an opportunity of adding to his portfolio anything that came before him of pictorial archaeological value. The pleasures of country excursions were greater still to the artist, for in Nature's ever-varying mood, with the fleeting effects of shadow, the captivating play of colour, and the pathos of historical

association, the artist found abundant scope. It was said that

GIORGIONE AND TITIAN

founded their colouring on the autumn tints, whilst Rubens looked for his brilliant hues in the light and freshness of early spring, and Constable felt oppressed when visiting the hills and solitude of Westmoreland. He looked in vain for churches, farmhouses, or scattered hamlets, and considered flat agricultural Suffolk to be a more delightful country for the artist. This feeling explained the remark that a landscape painter often found the dullest spots the most suggestive. A group of cattle standing in shade on a dark hill, with a glimpse of sun falling on clouds in the distance; a heathery roadside; an ivy-grown cottage at the end of a lane running between hedges of brier-roses and honeysuckle; these furnished abundant material for the pencil. Common objects abounded in the picturesque. An artist fond of Architecture found a veritable mine of wealth in the relics of bygone ages, so that, imperatively, he was an antiquarian, if not so deeply versed in all that related to its special history. The whole of our picturesque island was studded with noble

CATHEDRALS, PARISH CHURCHES, CASTLES, and manor houses, which bore silent witness to the culture of a vanished age, and to a race of craftsmen who had left no successors. Even architects, in their professional practice, often found cause to destroy the poetic charm of these venerable piles. For an instance one need not go further than Kirkstall Abbey, which had been despoiled of its rare beauty, and every vestige of artistic and poetic beauty done away with. Mr. Snowden then dealt exhaustively with the picturesque character and surroundings of well-known artistic resorts.

THE NEW COUNTY BUILDINGS AT WAKEFIELD.

VISIT OF THE YORK SOCIETY.

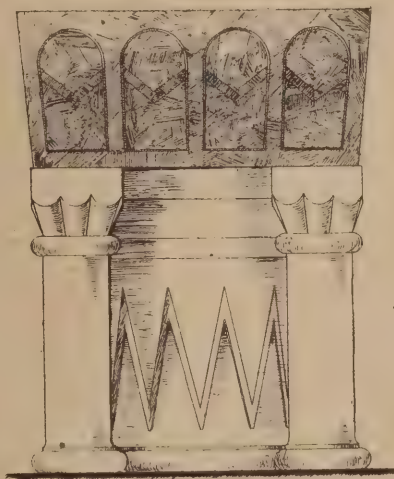
THROUGH the courtesy of the architects (Messrs. Gibson and Russell, London), the members of the York Architectural Society were recently enabled to pay a visit of inspection to the magnificent county buildings which have been erected for the accommodation of the West Riding County Council at Wakefield. The site which the buildings occupy has been well chosen, being situated on high ground, in close proximity to the Town Hall and the West Riding Court. In shape it forms a diamond, which embraces an area of 45,136 square feet, and is bounded on all sides by streets—namely, Bond Street, Cliff Parade, Burton Street, and Hardy Street. The elevation to the first named is very ornate, one of the principal features of the façade being a loggia consisting of six bays on the first floor, on the pilastres between which are sculptured in niches life studies illustrating the leading manufactures of the county. These figures represent a miner, an iron moulder, a mechanic, a spinner, a glass blower, a potter, and an agricultural labourer. They are the work of Mr. Rhind, of Edinburgh, and serve as a fitting memorial to the enterprise and progress which characterises the large and populous district over which the West Riding County Council is called upon to provide. It will be noted that Mr. Rhind has chosen his models in an appropriate, every-day, working costume, the spinner lass, for instance, with shawl on her head, the farm labourer attired in smock frock, and the miner stripped to the waist, and these will doubtless be objects of interest to future generations as a faithful

record of the period. At the main entrance, sculptured in bas relief, are figures representing "Education," "Health," "Progress," and "Justice," while above rises to a height of 130ft. an

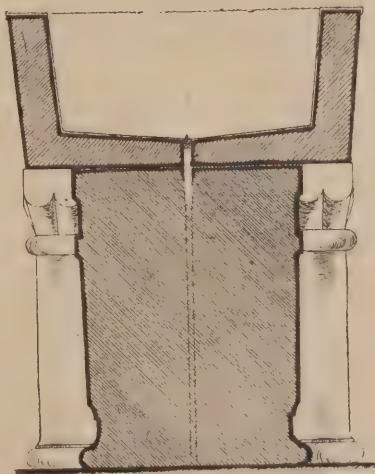
OCTAGONAL TOWER AND DOME,

surmounted with a cupola. This is balanced at the north-east angle by an octagonal turret. The elevation facing Cliff Parade harmonises with that in Bond Street, but differs therefrom by the addition of five fine Oriel windows on the first floor, these being enriched with carving showing the arms of the various towns in the county. Passing through the wrought-iron gates at the main entrance, the party was conducted by Mr. Marsh through the vestibule and hall to the staircase leading to the various committee-rooms on the first floor, after inspecting which the Council Chamber was entered. This spacious apartment is probably one of the finest in the province. In plan it forms a square, covering an area of about 2500 super feet. The roof is supported on four steel girders, encased in wood. These are arranged in the form of a Greek cross, from the central square of which a domed roof is raised on segmental arches, terminating in a cupola giving light from above. Ample light also is afforded by the two magnificent windows on either side of the hall, and six smaller ones. Artificial light is supplied to eight massive hanging electroliers, which are richly decorated in design.

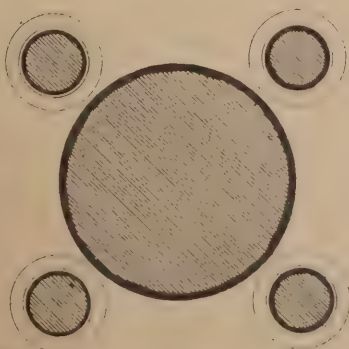
It is proposed to erect a large Methodist hall in the most conspicuous part of Bermondsey. The entire project will involve an estimated expenditure of fully £30,000. The land alone on which the pile of buildings is to stand has cost over £10,000.



ELEVATION.



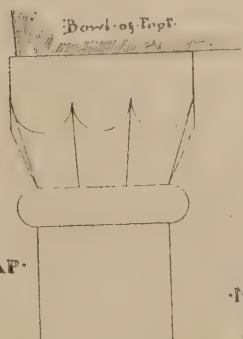
SECTION.



PLAN.

Scale of Feet

DETAIL OF CAP.



MEASURED AND DRAWN BY G. J. F. HOOKWAY

MAY 1897

ARTISTIC COPYRIGHT.

WITH SPECIAL REFERENCE TO ARCHITECTS.

BY MONS. GEORGES HARMAND.

IN a paper on the above subject, read before the Royal Institute of British Architects on Monday night, Mons. Georges Harmand, avocat à la Cour d'Appel, Paris, pointed out that for the last fifty years the use of copyright has extended through all departments of Art and literature, and urged that development of the means of artistic or industrial reproduction has given an ever-increasing importance to copyright. One of his objects was to give an idea of the state of opinion on the Continent regarding the question of copyright. Over the greater part of Europe architects enjoyed protection for the works they created, and it was of greatest importance that the Profession in England should have the same privileges. Unity in the protection of their Art was the best means to its development and its triumph. The fact that for a long period architects had not claimed copyright in their works was no reason against the right. There was ample evidence to show that from remote ages architects had been accustomed to put their names, or to leave some other

TRACE OF THEIR PERSONALITY

on the monuments they erected. Instances of the custom were cited by the lecturer from a paper read by M. Ch. Lucas at Milan in 1892. Years before any other European country, England had made laws for the protection of artists and authors. Till quite recently, however, the reproduction of architects' designs for publication was an expensive matter, and only monographs of a few very important buildings, or the works of a few very great architects, had been published. In the present day it was easy for architects to get full reproduction of their works, and for the sake of their own memory, their credit, and their fame, they should strive to secure the preservation of their drawings, and the guarantee of their authorship. In England the rights of artists in reproducing their works by printing processes were protected by statute, architectural drawings being expressly mentioned; but

ENGLISH ARCHITECTS APPARENTLY LACKED CONFIDENCE

in their rights, and hesitated to claim the protection the law afforded them. The question of unification of the legislative measures relating to copyright had been well thrashed out at congresses held by the International Literary and Artistic Association at various cities of Europe; and, as a result, a convention was agreed upon at Berne, in 1886, between Great Britain, France, Italy, Spain, Belgium, Germany, &c., which provided for the grant of copyright to, among other works, drawings and works of painting and sculpture, to engravings, prints, &c., and to "plastic works relating to geography, topography, Architecture, and sciences in general," also to any production belonging to literature, science, and Art capable of reproduction by printing, &c. But the law of some nations party to the convention did not fully protect Architecture. In Germany an architect enjoyed copyright in his designs so long only as they exist on paper; he lost his rights in his drawings as soon as a building was erected from them. In Great Britain, the lecturer understood,

ARCHITECTURE WAS NOT PROTECTED BY LAW, except for drawings and plans. Conferences had been held all over Europe by the Association above referred to, and strenuous efforts made to secure full protection for Architecture. Having dealt with the object of copyright, its privileges, the class of work whose authors were universally admitted to be entitled to the right, the lecturer went on to show that, by their methods of work and the nature of their inventions, architects were in a similar position to painters, sculptors, and other artists, and should be conceded the same safeguards for their protection. Quoting judg-

ments of French and Belgian legal tribunals, emphasis was laid on a recent decision at Antwerp, where it was held that, in order to be considered the author of a protected work, it was not necessary for a man to produce a work entirely original in all its parts; it was sufficient that he had made a design, traced a drawing and plan, and infused his own individuality into elements gathered from works whose copyright had expired. Such was an artistic creation which merited the protection of the law. The lecturer then touched upon the arguments adduced against the rights contended for, and having shown their unsoundness, proceeded to treat of the relations between the architect and his employer. The architect furnishes plans and drawings, and agrees with his client for their reproduction in a building on a certain site. Such plans and drawings represent

THE ORIGINAL WORK OF THE ARCHITECT.

The client bargains for the possession and use of the building, and the enjoyment of its beauty, if it has artistic qualities. But, the lecturer contended, the right of reproducing the building on paper, by drawing, photography, or printing process, did not pass to the client, but remained in the architect. If the client desired in any way to reproduce his building pictorially by engraving or other process, the architect could consent, for an agreed consideration, or he could refuse. The client, again, had no right to the original drawings, but only to copies, and this was sufficient to warn the client that the architect intended to keep the copyright for himself. The drawings handed to the owner should show some evidence of their being copies merely, and should bear the architect's signature. The owner had no right to repeat the building on any other site, or to permit anyone else to do so. The architect received fees calculated on the cost of the one building only. Repetition could only be made with the architect's sanction; and if repeated, he was entitled to fresh fees. It was important for the preservation of his rights that the

ORIGINAL DRAWINGS SHOULD BEAR THE ARCHITECT'S SIGNATURE.

His signature could not well be preserved on the buildings themselves, but as they were mere reproductions of his drawings, his interests would be sufficiently safeguarded by the signature being placed on the original drawings, and any copies, prints, or photographs of them. An architect could always print reproductions of his drawings under his own name; but the client had no more right to make prints or photographs of his buildings without the architect's consent than to repeat the buildings on another site. In concluding, the lecturer expressed his conviction that when architects felt that they could work and create for their profit, and have the reward of their pains and efforts, they would strive more after genuineness, and Architecture as an Art would progress, to the greater glory of beauty. If architects in Great Britain did not enjoy such rights in their creations as the lecturer had advocated, he hoped they would do their utmost to prevent the matter being overlooked in any new Copyright Act.—Professor Kerr, proposing a vote of thanks to the lecturer, said if in this country they could establish anything in the nature of architectural copyright—he did not think they could—it would be of very great service, in the way of

ESTABLISHING A CLAIM

upon the public attention which was not accorded to architects now. There was a great difference in respect to the Architecture of one country and another, just as with artists, and there was all the difference in the world between the appreciation of Architecture in the country to which the lecturer belonged and its appreciation in this country. The Latin race seemed to be charmingly possessed with the faculty of Art in a way which we of the dormant nations could not pertain to. Therefore, when the lecturer spoke of the glory of the architects, they in England were bound to tell him that their glory was not

recognised in the English courts of law. Even if the architect's copyright could be established, it would fare very badly at the hands of the gentlemen who were disposed to put forth their efforts in the examination of an architect—as to what he claimed to be Architecture. He thought that the view of a judge with a clear head, who paid strict attention to common sense, as to architectural copyright, would be this: that the law of England especially was founded upon common sense principles for the multitude, and that it recognised copyright, patent rights, and protection of any sort

AS COMMERCIAL VALUE

and nothing else. "Show me," he would say, "what damage you have sustained in pounds, shillings, and pence, and then I will tell you what I think of it." If they only suffered damage in respect to self-appreciation of their work, he was afraid it would not be understood. The lecturer insisted upon the architect's artistic merit being in the drawing and not in the building, and said that the architect designed on paper, and that the building was a reproduction of it. That was a new idea, and he did not think it was the correct one, or that it would be recognised in our courts of law. They had had it in a somewhat different form in the question of the ownership of drawings, when the judges were decidedly of opinion, from their point of view—which did not accord with the architect's view—that that which the architect supplied to his client in consideration of payment was his best services in designing, and the paper drawing, under the circumstances, could only belong to their employer. Personally he thought they would

NEVER SHAKE THAT OPINION.

They could try, and one way was by bearing in mind the distinction drawn by the lecturer between the work of Art as represented by the drawing and the reproduction represented in the building. The contention here was that the building was the work of Art, and that the drawing was merely the representation of it. They had all the copyright they could expect and would have as regarded the payment, provided they registered the paper work, and paid the fee. There was a great deal of force in the lecturer's argument that copyright was a privilege of the author, and that the architect was the author of an artistic design, and therefore entitled to copyright it. There was one respect in which copyright was desirable, and that was when an architect was employed to design a house in the suburbs, and then found two or three house agents sent emissaries at a fee of five shillings to draw the design. He was afraid young architects were very much aggrieved in that respect.—Mr. John Slater seconded, observing that it did seem a little absurd that a painter who painted anything of a portrait or view could claim copyright, while the architect who was obliged to put his design upon paper, because he had no other way of carrying it out, could not have a copyright for his own building. Was not the design of a building just as saleable as a picture? And was it not

JUST AS MUCH THE ARCHITECT'S WORK

as that of the artist? He was quite sure that architects, not only in this country, but all over the world, would be only too happy if the efforts the lecturer was making to obtain copyright for them were successful.—Mr. J. Hebb remarked that, looking at the decision of the judges with regard to the property in architects' drawings, it would be quite useless to attempt to set up a claim for copyright in design.—Mr. E. W. Hudson said architects borrowed their ideas more or less from those who had gone before, and therefore it was only fair if they were inspired with anything worth looking at that they should give it "as freely as they had received."—Professor Aitchison said, for small buildings particularly, architects felt there was a need for some scheme of payment. At present it was quite disproportionate to the time and skill expended upon them.—M. Harmand briefly replied.

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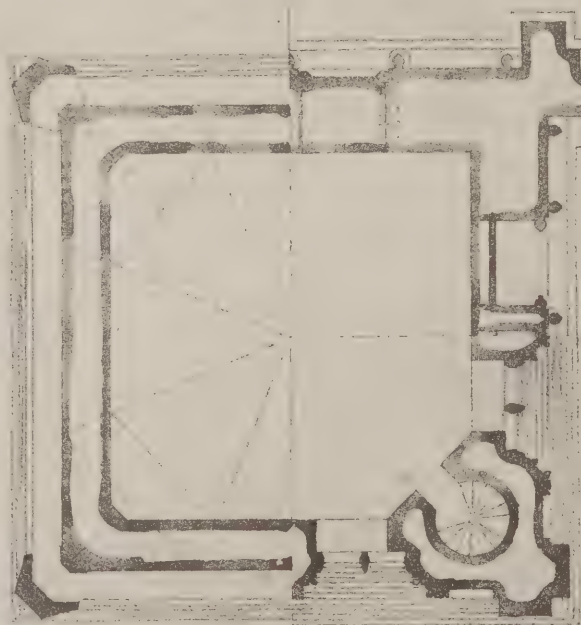


CREDITON CHURCH, FROM THE NORTH-WEST.

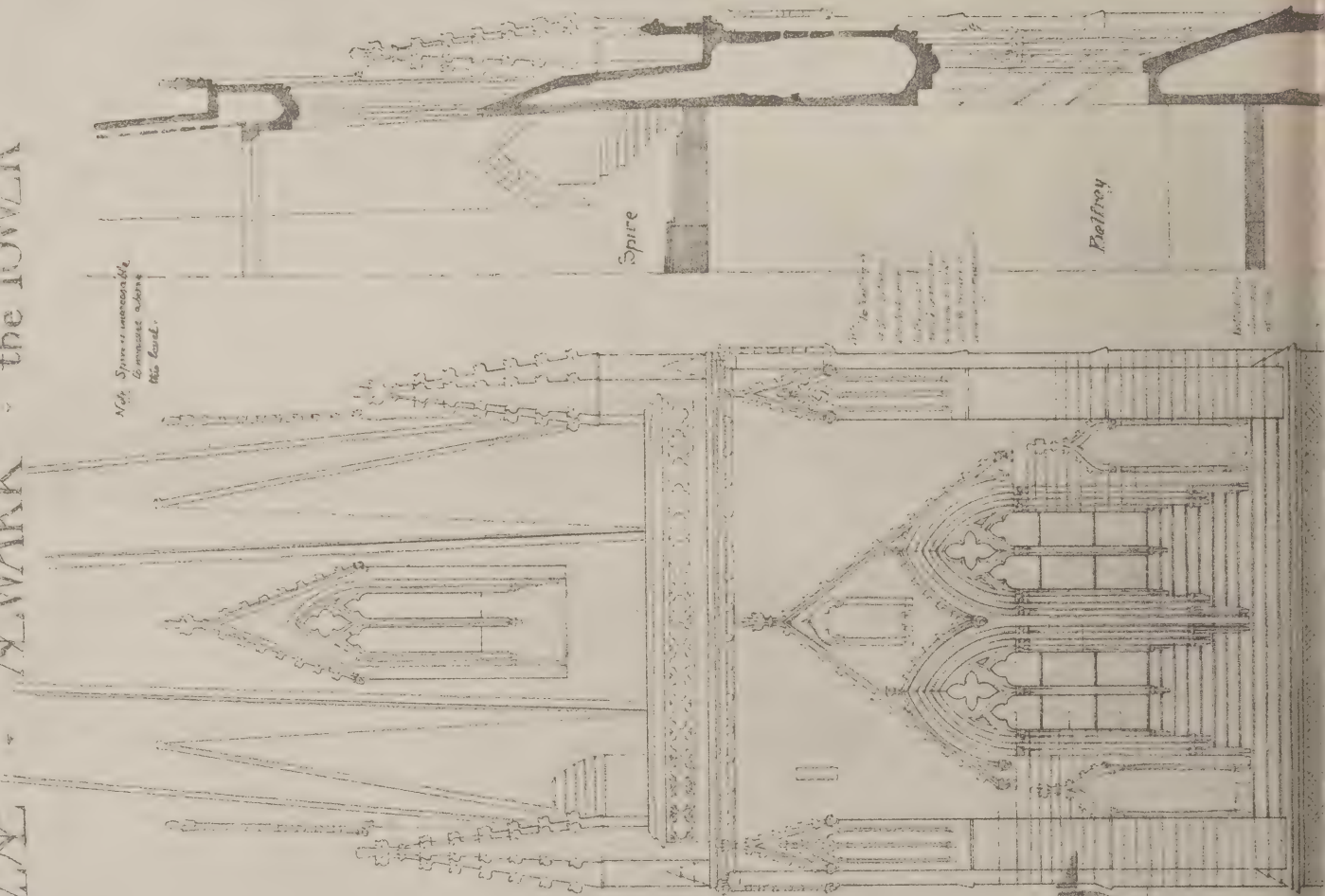
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CHURCH OF ST. MARY MAGDALENE

NEWARK - the TOWER



Plan at
Parapets



Note: Spire is intended to
be removed when
the tower is
completed.

Spire

Belfry

Plan of B
of Reading

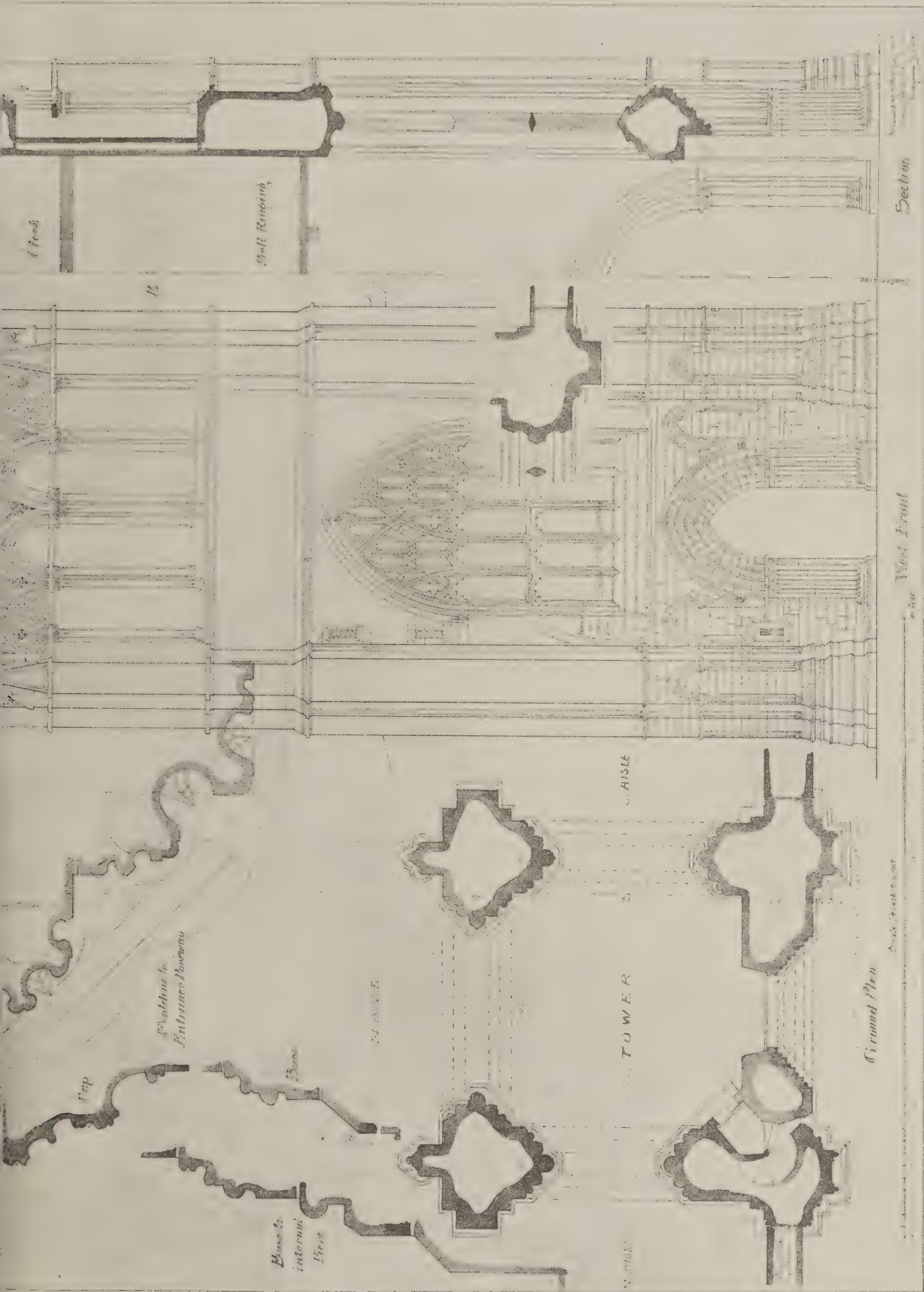
Parapets - Details

Center Line

Plan of A
of Belfry

South Arch Window to Belfry Lobby

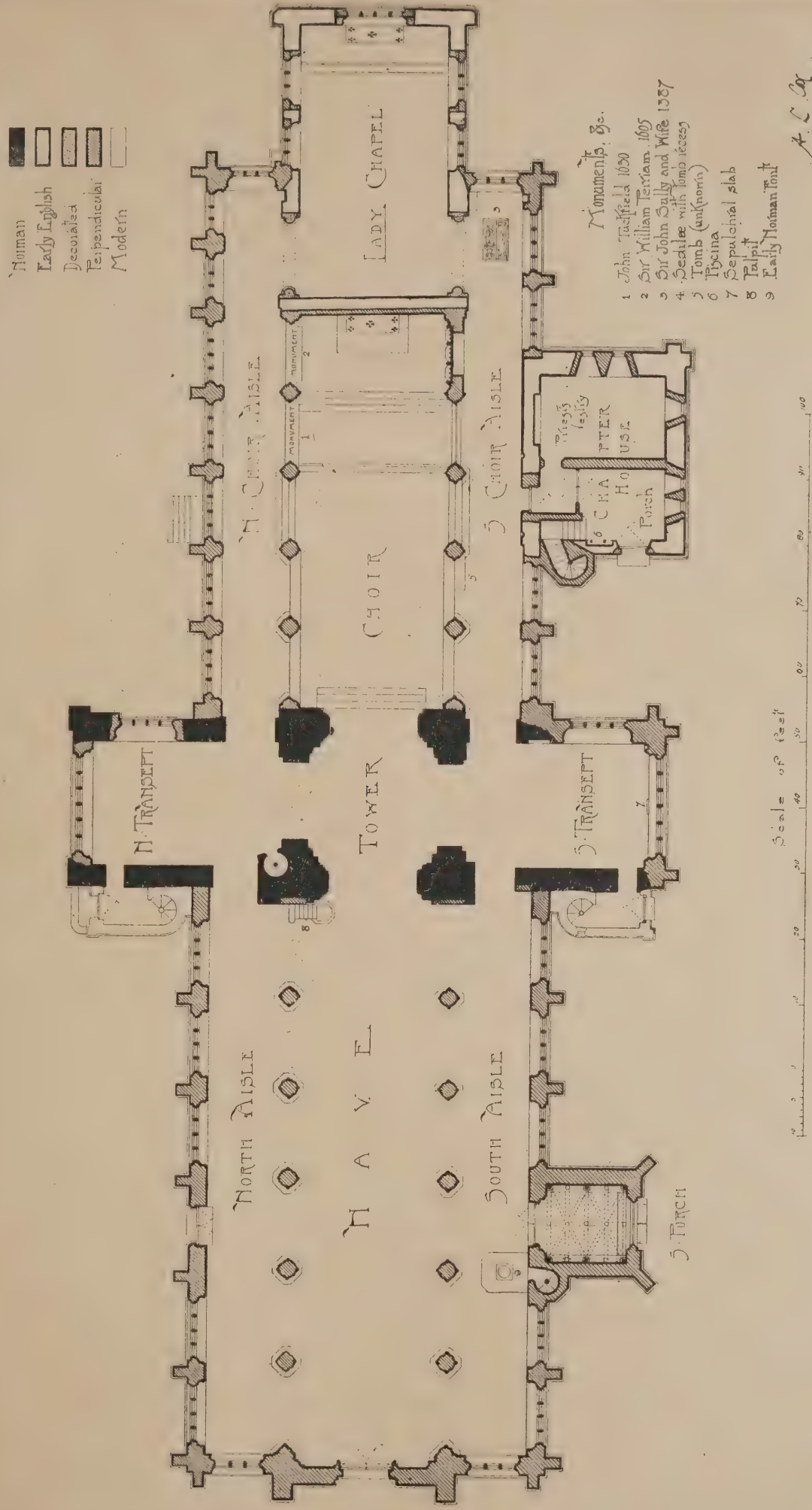
Moldings drawn



THE PUGIN TRAVELLING STUDENTSHIP, 1867-8.—MEDAL OF MERIT DRAWINGS, BY BENJAMIN BOWER.

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CHURCH OF ST. MARY AND THE HOLY CROSS. (REDUCTION. DIVISION.)



C. H. 50

$\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$

Monuments, &c.

- 1 John Tuckfield 1030
- 2 Sir William Terham. 1605
- 3 Sir John Sully and Wife 1587
- 4 Dedilee with Tombs recess
- 5 Tomb (unknown)
- 6 Freina
- 7 Sepulchral slab
- 8 Talbot
- 9 Early Norman font

A. L. Cox
Mans et Delb
5/97

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Surveying & Sanitary SUPPLEMENT.

APRIL 6TH, 1898.

POLICE STATIONS AND PRISONS.

By GEORGE H. BIBBY, F.R.I.B.A.

V.—CONSTABLES' RESIDENCES.

(Continued from page vi.)

THE residences for the superintendent of the police, sergeant and single constables should not only be separated one from the others, but also from the charge room and offices of the police station and business

might be used as a bathroom. The bedrooms for the sergeant's residence are shown at F G and H. Quite apart from all these are the single constables' kitchen at J, and their living room at K. At L M N are the cubicals for the single constables' beds, the bath is at P, while a drying stove and lockers are located at O. The plan generally is based upon principles which have been approved by constabulary authorities, and may be adapted to the requirements of various localities.

Another form of police station is shown by the plans given in Figs. 13 and 14, where the accommodation includes a provision for an inspector's residence, business rooms, and cells

for nine male and four female prisoners. On Fig. 14 B is the charge room, A G H and E offices, and D is the waiting room, J stores, and K the police parade shed. The residence for the inspector is entirely upstairs; on the first floor level (see Fig. 13), and consists of A and B, bedrooms; C, sitting room; D, kitchen; E, scullery; and F, pantry.

Detached accommodation for the single constables, stables, and other adjuncts, would be erected within the parade yard or enclosure attached to this station.

The official regulations or suggestions, in reference to sanitary arrangements in police stations, do not greatly vary from those required in connection with other public buildings. The subsoil of the establishment should be effectually drained by means of suitable earthenware field pipes, whenever the condition of the site renders such a precaution necessary; such pipes should be laid in such a manner as not to communicate directly with any sewer, cesspool, or soil drain. The drains for the building, other than those above mentioned, should be of good, sound stoneware, or other suitable material; they should be of adequate size, and, if constructed for conveying sewage, should have an internal diameter of not less than 4in., and be laid on a perfectly solid foundation with an even fall, which should be, wherever practicable, not less than 1 in 60 near the buildings, and with sufficient socketted or other suitable joints, made watertight; the joints should never be made with clay, and if Portland cement is used, they should, after being laid, be cleared inside from any projecting portions of cement, so as to prevent any obstruction to the flow. The soil



FIG. 12.

portions of the premises. In connection with the larger station houses, it may be found convenient to add offices and apartments for purposes other than the custody of prisoners, and to give some accommodation for the storage of lost or stolen property, the housing of fire-escapes, ambulance carriages, and other appliances for public use, together with disinfecting chambers, &c.

In Fig. 11 is given the ground-plan of a police station for the accommodation of eight prisoners, in the cells marked C, the charge room being at B, and the superintendent's office at A; D shows the position of the constables' cleaning room. No apartments are placed above the cells, but accommodation for three (single) policemen is provided above the charge office and the superintendent's business room, and these rooms are approached by a staircase adjoining the latter; the advantage of this arrangement is that the single constables are quite isolated from the residences appropriated to the superior officers. The sergeant has, on the ground floor, a scullery, kitchen, and sitting-room, with a separate lobby entrance from the street; while the superintendent has a sitting-room at J, a parlour at K, a kitchen at L, a scullery at M, a pantry at N, and a store at O. The two residences are kept quite distinct from each other and from the police station, and all three divisions are provided with separate yards.

The upper or first floor plan on Fig. 12 shows, at A B C and D, four bedrooms for the superintendent's family, and a small store-room at E; one of these (preferably that at E)

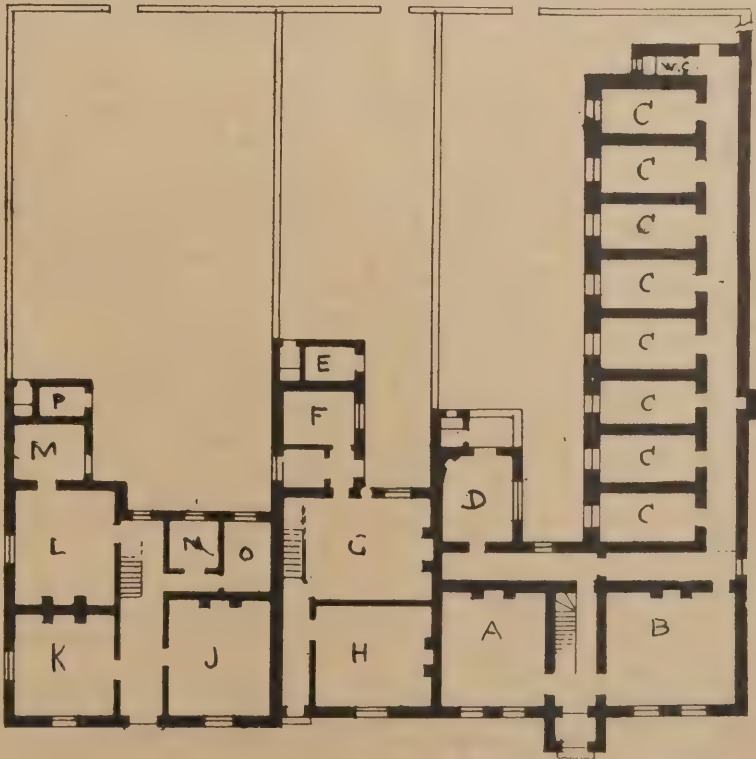


FIG. 11.

drains should not pass under the buildings if it can be avoided, but if it cannot, one line of drain only should be laid in a straight line for the whole distance beneath the building. This should be of cast iron piping of good thickness, jointed with molten lead, or of sound socketed stoneware pipes, jointed with Portland cement and completely embedded in and covered with good and solid concrete at least six inches thick all round; and there should be no branches led into the drain under the building.

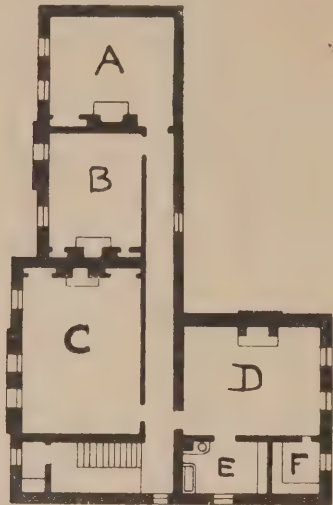


FIG. 13.

Every inlet, other than such as are provided solely for the ventilation of the drains, should be effectually trapped.

Drains which communicate directly with a sewer or cesspool should be provided with a suitable intercepting trap at a point as near as practicable to the sewer or cesspool. This trap should be placed in an inspecting chamber constructed of brickwork in cement, and provided with a fresh-air inlet and air-tight cover. The bore of the intercepting trap should never be larger than that of the drain delivering into it.

The drains from the building should be laid in straight lines, and the junction of two drains should be made at as sharp an angle as practicable, in order to avoid any interruption to the flow of sewage at that point. When a change of direction occurs in a drain, or when two or more drains meet, a manhole or inspection-shaft should be provided to give access, by which the drains can be cleared of obstruction, if necessary. The bottom of the manhole should be channelled, so as to secure the flow of the drainage past the junction by an easy curve, and an extra fall should, where it is possible, be given to the curved portion of the drain in the manhole.

The drain ventilation should be effected by admitting fresh air to the access-chamber at the upper side of the intercepting trap, so that a current of air should pass through the drain, from the highest part of which a proper air-shaft should be carried vertically, to afford an outlet for the air passing through the drain. This pipe should be so placed, and carried to such a height, that the foul air may not be liable to be discharged into any building, or where it can be injurious to health, and should in no case be less than 10ft. in height.

Every opening provided in accordance with the arrangement above described should be furnished with a grating or other suitable cover, for the purpose of preventing any obstruction or injury to the drain by the introduction of any substance through such opening. The air must have free passage through these gratings or covers by means of apertures, the aggregate extent of which should not be less than the sectional area of the pipe or drain to which the gratings or covers are fitted.

All pipes or shafts which may be used in connection with the ventilation arrangement above specified should be of a sectional area not less than that of the drain with which

such pipe or shaft may communicate, and not less in any case than the sectional area of a pipe of 4in. in diameter; no bend or angle, except where unavoidable, should be formed in any pipe or shaft used in connection with these arrangements.

The soil-pipe from every water-closet should be at least 4in. in diameter, and should be quite air-tight; it should be fixed outside the building, and continued upward without diminution of its diameter, and (except where unavoidable) without any bend or angle, to such a height above the building as to afford, by means of the open end of such pipe, an outlet for foul air; it should be in such a position as to be free from any danger of contaminating the air of any building. The waste-pipe from any slop sink, if independent of any soil-pipe, should be similarly constructed.

All waste-pipes from bath, pantry, or scullery sinks, the overflow-pipe from any cistern and from every safe under any bath or water-closet, and every pipe for carrying off waste water, should be trapped and taken through an external wall of the building, and discharged in the open air over a channel leading to a gully trap at least 18in. distant.

Every water-closet or earth-closet should be in such a position that one of its sides at least shall be an external wall. It should have a window of not less dimensions than 2ft. by 1ft., exclusive of the frame, and opening directly into the external air; in addition, such closets should be provided with adequate means of constant ventilation by at least one air-brick, built into an external wall, or by an air-shaft, or other effectual method.

The water supply to the buildings should be good and sufficient, with all necessary supply pipes, services, cisterns, fittings, and apparatus for the purposes of the water-closets, separate and independent from that used for drinking, culinary, and household purposes; the overflow pipes of every cistern should have no direct communication with soil-pipes or drains.

The following forms of apparatus are not to be used in connection with police station buildings: bell, dip, and D traps. Rainwater pipes should deliver into an open channel, and

The selection of a suitable apparatus is a matter of some difficulty. There are about twenty-five firms well known in this country for their manufacture of sanitary ware and apparatus of various descriptions, and from these may be selected fittings to meet the varying preferences of committees and others concerned with the erection of police stations.

With regard to the heating of police stations, there are many engineers who have devoted special attention to this particular subject. To place such works in the hands of persons quite without previous experience as to the difficulties to be met with in police station construction (and which are largely connected with considerations respecting the safety of the prisoners and the circumstances under which police stations are conducted) would be to court failure, but on the other hand there are some systems of heating and ventilating police stations which, in quite opposite modes, satisfactorily answer all purposes. Such systems are frequently the result of laborious scientific research, and extensive and long-continued experiments carried out by firms having at hand appliances and data beyond what could be reasonably expected to be in the possession of architects, medical men, and others interested.

(To be continued.)

THE dust destructor erected by the Poplar District Board of Works on land in Glaucus Street, Bromley, at a cost of £11,000, has been opened. The destructor, which contains fourteen cells, is calculated to destroy about 130 tons of refuse per diem, and the shaft is 150ft. from the surface of the ground.

THE annual dinner of the Sanitary Institute was held at the Holborn Restaurant, recently, Sir Douglas Galton presiding. For twenty-one years the Institute has been doing good and useful work in the dissemination of sanitary knowledge. It maintains a library and a permanent museum of sanitary appliances, and there are frequent lectures for students and those men and women interested in the science. The museum was founded in memory of Dr. E. A. Parkes, of Netley, and

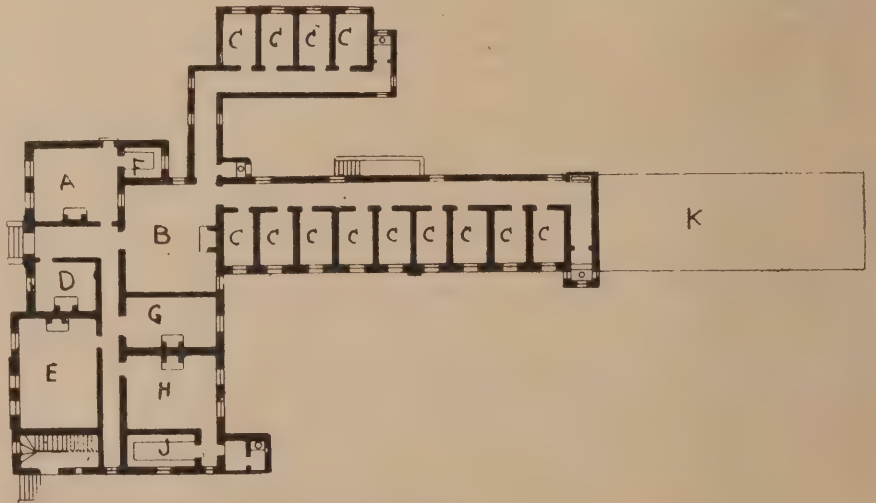


FIG. 14.

to a gully of not less than 18in. from the foot of the pipes, if this distance can be secured; if not, the bottom of the rainwater pipe should be furnished with a trap having a fresh-air inlet.

The foregoing regulations, it will be seen, correspond in various respects with those officially required in connection with workhouse, asylum, hospital, and other public buildings. It would, however, be an advantage that water closets and slop sinks, &c., should, in the case of all police stations, be placed in an annexe built away from the main buildings, but connected therewith by narrow-neck passages in the manner generally to be found in modern hospitals, the idea being to obtain cross ventilation between the closets and the main buildings.

the first president was the Duke of Albany. The Duke of Cambridge, who has been a member of the Institute for over fifteen years, is now the president.

A TUNNEL is being pierced at Berlin under the Spree, between Stralau and Treptow Park. As regards magnitude there is nothing extraordinary in the work; but the difficult conditions, owing to the ground being sand, permeable to water, entitle it to rank as an achievement. The principle is that adopted in the Central London Railway, namely, a succession of steel rings within a cuirass of cement, and, of course, the use of the shield with compressed air is a necessity. The method is, indeed, a precise copy of the English one. Progress is made at the rate of from sixty to ninety centimetres a day.

Surveying and Sanitary Notes.

In the Queen's Bench Division recently the case of Heaysman v. the Bromley Urban District Council was heard. It was an action brought by Mr. William Heaysman for damages for an alleged trespass committed by the defendants in constructing a sewer across the plaintiff's land. The plaintiff was the owner of sixteen houses in Wharton Road and North Road, in the district of Bromley. A sewer ran through the gardens at the backs of the houses with which the drains of the houses were connected. On March 31st, 1897, the defendants gave notice to the plaintiff, in pursuance of section 16 of the Public Health Act, 1875, that within twenty-four hours they intended to enter on the premises owned by him for the purpose of relaying the sewer. On April 1st the defendants entered on the premises and took up the old sewer and made a new sewer 8ft. away from the site of the old sewer. The new sewer was laid deeper and had a different outfall. According to the plaintiff's case, the works executed by the defendants caused the buildings at the back of some of the houses to settle. He also complained that the defendants' men carted away some of the sand excavated by them. Section 16 of the Public Health Act, 1875, is as follows:—"Any local authority may carry any sewer through, across, or under any turnpike road, or any street or place laid out as or intended for a street, or under any cellar or vault which may be under the pavement or carriageway of any street, and, after giving reasonable notice in writing to the owner or occupier (if on the report of the surveyor it appears necessary), into, through, or under any lands whatsoever within their district." It was contended, on behalf of the plaintiff, that the notice given by the defendants was bad for the purpose for which it was used, as it did not state that it was intended to construct a new sewer, but only that it was intended to relay the old sewer. It appeared that, though a report showing the necessity for the new sewer was made by the sanitary officer, no written report was made to that effect by the defendants' surveyors. It

was contended, on behalf of the plaintiff, that the surveyors' written report was a condition precedent of the defendants' right to make the sewer.—In the course of the plaintiff's case, Mr. Macmorran, for the defence, intimated that, in answer to the plaintiff's first point, his point would be that for altering the course of an existing sewer no notice was required. The power to alter the course of a sewer was given by section 18 of the Public Health Act, 1875, which provides:—"Any local authority may from time to time enlarge, lessen, alter the course of, cover in, or otherwise improve any sewer belonging to them, and may discontinue, close up, or destroy any such sewer that has, in their opinion, become unnecessary. . . ." It appeared that the houses were in the occupation of tenants, and the defendants denied that any damage was done to the reversion by the alleged trespass.—Mr. Justice Hawkins suggested that it was a case in which it would be proper for the parties to come to some settlement. He was of opinion that the defendants had the right to enter on the land and do the work, and that, if in doing so any damage had been done to the premises, the plaintiff was only entitled to recover so much of it as was found to be damage done to the reversion.—Eventually, a *stet processus* was entered, it having been arranged that the defendants should pay to the plaintiff such damage as their surveyor should find to have been sustained, and that if the plaintiff should not be satisfied with the amount, he should be at liberty to take proceedings under section 308 of the Public Health Act, 1875, to have the amount settled by an arbitrator.

AFTER the rejection of the culvert scheme, for carrying the effluent from the Manchester City Sewage Works at Davyhulme to the Mersey, the Rivers Committee appointed a small sub-committee to consider the best method of dealing with the effluent. The report of this sub-committee has now been issued to the members of the City Council. The sub-committee has visited the sewage works in connection with London, Friern Barnet (Middlesex), Sutton (Surrey), Hendon, Chorley, Oldham, Swinton, Salford, Glasgow, and Accrington, and over sixty different schemes and appliances and about fifteen

suggestions have been fully considered. The general conclusions upon which the committee concur are:—(1) That filtration by land is altogether impracticable, as no part of the land at Davyhulme nor any land obtainable in the district is suitable for such process. They have visited the works of other authorities, and in all cases the land filtration is ineffective, and is in many cases to be superseded by artificial methods of filtration. The sub-committee think that the imposition of conditions by the Local Government Board which make the purchase of large areas of land for filtration compulsory should be removed. They suggest that all municipal authorities should combine to secure the removal of these impossible conditions by the appointment of a Royal Commission to investigate recent progress in sewage treatment. They believe that these conditions were based upon the report of a former Royal Commission which was founded on information now obsolete. (2) That no practical system of precipitation by chemicals alone has been laid before them which will meet the requirements of the Mersey and Irwell Joint Committee. (3) The sub-committee agree that of all the methods of artificial filtration, the nearest to natural action and most reasonably "practicable and available" for adoption is the biological filter, or bacteria bed, such as may be seen in operation at many of the places visited. They recommend the immediate construction of four acres of bacteria beds, and that the best available expert assistance be obtained in regard to the construction and working of the same. After completion of this area, and proof of cost, capacity, and efficiency, the progressive extension of the same to be made on an area large enough to meet the requirements of the daily normal flow of sewage. The sub-committee consider it necessary to take action in relation to certain liquid refuse which in its crude form is not admissible into the sewers. The City Surveyor's estimate for constructing thirty-seven acres of bacteria beds varies from £80,000 to £127,000, according to depth and mode of construction. The cost of working and maintenance cannot be estimated, as no place visited by the sub-committee has yet applied this principle for a sufficient length of time on such an extensive scale as to provide a basis of cost.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
April 9	Cookstown, Ireland—Court House	Grand Jury, County Tyrone	Secretary, Grand Jury, Curagh.
" 9	Margate—Agricultural Show Buildings	East Kent Agricultural Society	The Secretary, Canterbury.
" 9	Downpatrick, Ireland—Latrine	Guardians	Poor Law Offices, Downpatrick.
" 9	Eckington, Sheffield—Extension of House, &c.	Gas Company, Limited	Fisher and Sons, Architects, Eckington, Sheffield.
" 9	Ees Wyke, near Sawrey—Farm Buildings	Lieut.-Colonel Sandys, M.P.	J. Banks, Land Agent, Kendal.
" 9	Euston, near Thetford, Norfolk—Widening Bridge	West Suffolk County Council	W. R. Johnson, Estate Office, Euston.
" 9	North Hagbourne, Didcott—Completing Church Tower	St. Peter's Church Building Committee	G. R. McFarlane, Hon. Sec., North Hagbourne, Didcott.
" 9	Romsey—Erection of Manse	New Manse Committee	J. Jenvey, Architect, Market-place, Romsey.
" 9	Watergrasshill, co. Cork—Erection of Parochial House	Rev. J. O'Leary, P.P.	S. F. Hynes, 41, South-mall, Cork.
" 9	Woolwich—Erection of Engineering Workshops	Polytechnic Governors	Church, Quick, and Whincop, William-street, Woolwich.
" 10	Cowes—Erection of Club House	Conservative Club Committee	J. Yeates, 12, High-street, Cowes.
" 11	Burham, Kent—Erection of House	School Board	H. Benstead, Architect, Maidstone.
" 11	Cork—Erection of Offices, &c.	J. McCarthy and Sons, Limited	W. H. Hill and Son, 28, South-mall, Cork.
" 11	Dalton-in-Furness—Additions, &c., to Hall	Co-operative Society Limited	J. Butler, 34, Cornwallis-street, Barrow.
" 11	Woodhouse, Yorks.—Erection of Five Houses and Shop	Guardians	W. H. and A. Sugden, Architects, Cavendish-st., Keighley.
" 11	Kingston-on-Thames—Supply of Materials	Town Council	J. Edgell, Clerk, Union Offices, Kingston-on-Thames.
" 12	Bideford—Erection of Slaughter House	Committee	R. T. Hookway, Architect, Bridgeland-street, Bideford.
" 12	Oswaldtwistle, Lancs.—Alterations, &c., to School	Guardians	J. Yates, 3, Tackett's-street, Blackburn.
" 13	Farnham—Erection of Laundry	Guardians	Friend and Lloyd, Architects, Grosvenor-road, Aldershot.
" 13	Abergavenny—Erection of House	Town Council	J. Francis, Architect, Abergavenny.
" 13	Devonport—Building Bathing Platform	T. Sutcliffe and Sons	J. Burns, Municipal Office, Ker-street, Devonport.
" 13	Halifax—Additions to Mills		W. C. Williams, 29, South-gate, Halifax.
" 13	Hexthorpe, near Doncaster—Erection of Club, &c.		Baddiley, Solicitor, Priory-place, Doncaster.
" 13	High Ongar—Teachers' Residence	School Board	R. Mawhood, Architect, Chelmsford.
" 13	London, N.E.—Technical Workshops at Schools	Hackney Union Guardians	F. R. Coles, Union Offices, Homerton, N.E.
" 14	Halifax—Additions to Brewery	Brewery Company	W. C. Williams, 29, South-gate, Halifax.
" 14	Old Newton, Suffolk—Alterations to House	G. Fuller	H. G. Bishop, Architect, Market-place, Stowmarket.
" 15	Inverurie, Aberdeen—Erection of Shops, &c.	Great North of Scotland Railway Co.	Engineer-in-Chief, 80, Guild-street, Aberdeen.
" 16	Windsor—Alterations to Laundry	Guardians	Surveyor's Office, 17, Park-street, Windsor.
" 16	Cairo, Egypt—Supply of Cement	Public Works Department	Inspector-Genl. of Irrigation, Public Works Ministry, Cairo
" 16	Broughton, Lancs.—Erection of Police Station	Standing Joint Committee	H. Littler, 68, Fishergate, Preston.
" 18	New Brompton—Erection of Bakery, Flour Store, & Shop	New Brompton Economical Society	E. J. Hammond, 111, High-street, New Brompton, Kent.
" 18	Walsall—Alterations to Cottages, &c.	School Board	Bailey and McConnell, Bridge-street, Walsall.
" 19	York—Erection of Laundry Buildings, &c.	Workhouse Guardians	Penty and Penty, Architects, Lendal-chambers, York.
" 19	Sunderland—Post and Inland Revenue Office	Commissioners of H.M. Works	Offices, 12, Whitehall-place, S.W.
" 22	Sheffield—Erection of Fire and Police Station	Watch Committee	J. Norton, Alliance-chambers, George-st., Sheffield.
" 23	Rosslyn'ee, near Edinburgh—Additions to Asylum, &c.	District Lunacy Board	Dr. R. Anderson, 16, Rutland-square, Edinburgh.
" 27	Norton Woodseats, near Sheffield—Erection of Lock-up	Standing Joint Committee	J. S. Story, Surveyor, Offices, St. Mary's Gate, Derby.
" 28	Edmond, Salop—Erection of Agricultural College	Governors, Harper Adam Foundation	H. Teather, Architect, Andrew's-bldgs., Queen-st., Cardiff
ly 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.		Brazilian Legation, London.
o date.	Allerton, Yorks.—Erection of Eight Houses	A. Knappton	R. Drake, 142, Allerton-road, Allerton.
"	Armley, Leeds—Erection of Eight Houses		F. W. Rhodes, Architect, Upper Wortley, Leeds.
"	Ashton-under-Lyne—Erection of Fourteen Houses, &c.		T. D. Lindley, Architect, Market Avenue, Ashton-on-Lyne.
"	Buxton—Erection of Twelve Cottages		Buxton Lime Firms Co. Ltd., 8, The Quadrant, Buxton.
"	Friskney, Lincs.—Alterations, &c., to Chapel		T. Cowham, Friskney.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Hockering, East Dereham, Norfolk—Church Repairs ...	.....	A. J. Lacey, Diocesan Surveyor, Norwich.
"	Horwich, Lancs.—Superstructure of Church ...	.....	F. M. Palmer, 3, Lee-lane, Horwich.
"	Leeds—Erection of Church ...	.....	W. H. Beevers, 26, Bond-street, Leeds.
"	Leeds—Erection of Infants' School ...	School Board ...	W. S. Braithwaite, School Board Offices, Leeds.
"	London, E.—Erection of Synagogue ...	.....	F. W. Woolf, 32, Jane-street, Commercial-road, E.
"	Middlesbrough—Rebuilding Premises ...	Maypole Dairy Company ...	R. Lofthouse and Sons, 62, Albert-road, Middlesbrough.
"	Waste, Manchester—Erection of Fourteen Houses ...	.....	C. Locke, Architect, St. Peter's-square, Stockport.
"	Goole—Supply of Bricks ...	.....	Thorp, Architect, Goole.
"	Rotherham—Infirmary and Workhouse Block ...	Union Guardians ...	H. L. Tacon, 11, Westgate, Rotherham.
"	Caversham—Erection of Hotel ...	.....	G. W. Webb, Architect, Market Place-chambers, Reading.
"	Landrindod Wells—Bank Premises ...	London and Provincial Bank Limited ...	Wilson and Moxham, 15, Castle-street, Swansea.
"	Winchester—Erection of Schools ...	.....	Colson and Co., 45, Jewry-street, Winchester.
"	Blaydon-on-Tyne—Twelve Houses ...	Co-operative Society ...	— Allen, 16, Ryton Village East, Ryton-on-Tyne.
"	Hebburn-on-Tyne—Joiners' and Machine Shops ...	R. & W. Hawthorn, Leslie & Co. Ltd. ...	Company's Offices, Shipyard, Hebburn-on-Tyne, Newcastle.
ENGINEERING—			
April 9	Middleton, Lancs.—Steam Fire Engine ...	Corporation ...	J. Kempton, Superintendent, Fire Brigade, Middleton.
" 12	Derby—Electric Wiring ...	Corporation ...	Engineer, Electric Lighting Works, Derby.
" 12	Dukinfield—Sewage Purification Works ...	Joint Sewerage Board ...	Messrs. Newton, Engineers, 17, Cooper-street, Manchester.
" 12	St. Helens, Lancs.—Still ...	Gas Committee ...	The Engineer, Gasworks, St. Helens.
" 12	London, E.C.—Supply of Arc Lamp, Cables, &c. ...	Shoreditch Vestry ...	C. N. Russell, Coronet-street, Shoreditch.
" 12	Leamington—Supply of Pumps, &c. ...	Corporation ...	W. de Normanville, Town Hall, Leamington.
" 14	Aldershot—Tramway Bridge, &c. ...	Gas and Water Company ...	A. F. Wilson, 103, Victoria-road, Aldershot.
" 14	Congleton, Cheshire—Water Supply Works ...	Rural District Council ...	C. E. Hall, Engineer, West-street, Congleton.
" 19	Mansfield Woodhouse, Notts.—Water Supply Works ...	Urban District Council ...	G. and F. W. Hodson, Engineers, Loughborough.
" 20	Glasgow—Ballachulish Railway Extension ...	Callender and Oban Railway Co. ...	Sir J. W. Barry, 21, Delahay-street, Westminster.
" 21	Boston, Lincs.—Provision of Slip ...	Harbour Commissioners ...	W. H. Wheeler, Market-place, Boston, Lincs.
" 21	Egremont, Cheshire—Boring Work ...	Wallace Urban District Council ...	J. H. Crowther, Great Float, near Birkenhead.
" 21	Iford—Settling Tanks, &c. ...	Urban District Council ...	J. Taylor, Sons, and Santo Crimp, 27, Great George-st., S.W.
" 23	Edinburgh—Installation of Electric Light ...	Lunacy Board ...	Prof. Bailey, Heriot-Watt College, Chambers-st., Edinburgh.
" 25	Sophia, Bulgaria—Supply of Drinking Water ...	Municipality ...	Commercial Department, Foreign Office, S.W.
" 26	Maidenhead to Windsor—Dredging ...	Thames Conservancy ...	Engineer at Offices, Victoria Embankment, E.C.
" 27	Carnarvon, Donegal—Railway Extension ...	Donegal Railway Co. ...	J. Barton, Engineer, Exchange-buildings, Dundalk.
" 29	Carmarvon—Construction of Bridge ...	Corporation ...	— Wawn, Anglesey Inn, Carnarvon.
" 30	Sheffield—Steel Bridge ...	Corporation ...	C. F. Wike, Town Hall, Sheffield.
July 31	Tangiers—Water Supply ...	Hygienic Commission ...	Commercial Department, Foreign Office, London, S.W.
No date.	Navan—Repairs, &c., to Gasworks ...	Gas Company Limited ...	M. Morgan, Secretary, Navan.
IRON AND STEEL—			
April 11	Manchester—Supply of Tram Rails ...	Corporation ...	City Surveyor, Town Hall, Manchester.
" 12	Christiania—Supply of Cast-iron Pipes ...	Director of Gasworks ...	Commercial Department, Foreign Office, S.W.
" 12	London, W.—Supply of Iron Ballast Bins ...	St. James's Vestry, Westminster ...	T. H. Munsey, Vestry Clerk, Vestry Hall, Piccadilly, W.
" 12	Stretford, Manchester—Supply of Stoves ...	Gas Company ...	H. Kendrick, Gas Engineer, Gasworks, Stretford.
" 18	Beckenham—Cast-iron Sewer Ventilating Columns &c. ...	Urban District Council ...	J. A. Angell, Council Offices, Beckenham.
" 18	Hornsey, N.—Wrought-iron Fencing, &c. ...	Urban District Council ...	E. J. Lovegrove, Council Offices, Southwood-la, Highgate, N.
" 19	Wigan—Supply of Cast-iron Mains, &c. ...	Gas and Electric Lighting Committee ...	J. Tummins, Engineer, Borough Gasworks, Wigan.
PAINTING AND PLUMBING—			
April 9	Oxford—Painting Work, &c. ...	Corporation ...	City Engineer, Town Hall, Oxford.
" 9	Ballynahinch, Downpatrick—Repairing Pumps, &c. ...	Union Guardians ...	J. W. Montgomery, Poor Law Office, Downpatrick.
" 12	Castleford—Painting and Papering House ...	Burial Board ...	A. Wilson, Clerk, Station-road, Castleford.
" 18	Margate—Painting Hospital ...	Isle of Thanet Joint Hospit. Commtee. ...	G. Poord-Kelcey, 2, Hawley-street, Margate.
No date.	Porth, Wales—Painting Hospital ...	.....	Porth Cottage Hospital, Porth.
"	York, Sheffield—Painting, &c. ...	War Department ...	R.E. Ofce, Fishergate, York.
ROADS—			
April 9	Walsall—Supply of Slag ...	Rural District Council ...	F. W. Mager, District Surveyor, Aldridge.
" 9	Hastings—Cartage of Stone ...	Rural District Council ...	District Surveyor, Stonelynk Farm, Fairlight, Hastings.
" 9	Rugby—Cartage of Granite ...	Rural District Council ...	J. W. Pendered, Clerk, Rugby.
" 11	Walkden, Lancs.—Paving Roads ...	Worsley Urban District Council ...	J. T. Proffitt, Engineer, Offices, Walkden.
" 12	Newark—Supply of Granite and Slag ...	Claypole Rural District Council ...	C. D. M. Trinder, Surveyor, Brant Broughton, Newark.
" 12	Stafford—Supply of Road Metal, &c. ...	County Council ...	J. Moncur, Surveyor, County Council Buildings, Stafford.
" 13	Rochester—Supply of Stone ...	Commissioners of Sewers ...	H. L. Baker, Clerk to Commissioners, Rochester.
" 13	Cannock, Staffs.—Supply of Granite, Slag, &c. ...	Rural District Council ...	J. M. Whitehead, Brook House, Brewood.
" 13	Rishton, Lancs.—Paving, Flagging, &c. ...	Urban District Council ...	J. J. Adams, 68, High-street, Rishton.
" 15	Midsomer Norton, Somerset—Supply of Materials ...	Urban District Council ...	Surveyor, Council Offices, Market Hall, Midsomer Norton.
" 16	Pocklington, Yorks.—Supply of Slag, &c. ...	Rural District Council ...	T. Robson, Clerk, Pocklington.
" 17	Lutterworth—Supply of Granite ...	Rural District Council ...	J. C. Coates, Surveyor, Bitteswell, Lutterworth.
" 18	Guildford—Road Works ...	Town Council ...	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
" 18	Hornsey, N.—Widening, Kerbing, Paving, &c. ...	Urban District Council ...	E. J. Lovegrove, Council Offices, Southwood-lane, Highgate.
" 19	London, E.C.—Asphalte Paving Works ...	Streets Committee of Corporation ...	Engineer to Corporation, Guildhall, London.
" 19	Acton—Paving and Making-up Roads, &c. ...	District Council ...	D. J. Ebbetts, 242, High-street, Acton, W.
" 20	Sutherland—Road Works ...	County Council ...	A. Argo, County Offices, Golspie, N.B.
" 23	Hoylake, Cheshire, Supply of Materials, &c. ...	Urban District Council ...	T. Foster, Surveyor, District Council Offices, Hoylake.
" 25	Sutherland—Road Works ...	County Council ...	A. Argo, County Offices, Golspie, N.B.
" 27	Leyland, Lancs.—Carting Road Material ...	Hundred Highway Board ...	J. Whitfield, 10, High-street, Chorley.
No date.	Barry Dock, Cardiff—Formation of Roads, &c. ...	Sully Property Co. Ltd. ...	Veall and Sant, Architects, Cardiff.
SANITARY—			
April 9	Downpatrick—Latrine, Portaferry Quay ...	Guardians ...	J. W. Montgomery, Clerk, Downpatrick.
" 9	Pokesdown, near Bournemouth—Sewers, &c. ...	Urban District Council ...	E. W. Ingamells, Council Offices, Pokesdown, Bournemouth.
" 11	Church, Lancs.—Sewering ...	Urban District Council ...	J. E. Reddish, Clerk, Church.
" 13	Ulverston—Sewerage Works ...	Rural District Council ...	J. Greenwood, Surveyor, Union Offices, Ulverston.
" 13	Washington, Durham—Construction of Sewers ...	Chester-le-Street Rural District Council ...	G. Lydon, Surveyor, Birtley.
" 14	Wednesfield—Construction of Sewers, &c. ...	Urban District Council ...	R. E. W. Berlington, 1, 2, and 3, Bank-buildings, Lichfield-street, Wolverhampton.
" 18	Methley, Yorks.—Construction of Sewers ...	Urban District Council ...	J. Richardson, J.P., Methley Park, Leeds.
" 20	Fulham, S.W.—Pipe Sewer ...	Vestry ...	C. Botterill, Town Hall, Walham Green, S.W.
" 21	Iford—Sewerage Disposal Works ...	Urban District Council ...	Taylor, Sons, and Santo Crimp, 27, Great George-st., S.W.
No date.	Sunderland—Reconstruction of Drainage ...	Borough Asylum ...	J. Little, Viaduct-chambers, Carlisle.
TIMBER—			
April 1	London, S.E.—Supply of Karri, Jarrah, &c., Hardwood ...	Lambeth Vestry ...	J. P. Norrington, Vestry Hall, Kennington Green, S.E.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
April 30	Cricklade and Wootton Bassett—Water Supply Scheme	£21, £10 10s. ...	Rural District Council.
May 1	Belper—Sewage Disposal Schemes ...	£32 10s., £26 5s. ...	Urban District Council.
" 25	Tipton, Staffs.—Laying-out Park ...	£25, £10 ...	Urban District Council.
" 28	Trowbridge—Technical School ...	£40, £30, £20 ...	The Corporation.
" 31	Singapore—Designs for Town Hall ...	£200, £100 ...	Major F. L. Anderson, R.E., South Camp, Aldershot.
June 24	East Ham—Offices, Fire Station, and Public Baths ...	£105, £52 10s. ...	Urban District Council.
July 1	San Francisco Bay—Designs for University Buildings ...	£10,000 (divided in two competitions) ...	Trustees of the Phebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage ...	£100, £50, £25 ...	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c. ...	£100, £50, £25 ...	Town Council.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
April 6th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A BILL to provide for the registration of architects has been introduced by Mr. Atherley-Jones, the object being to distinguish qualified from unqualified practitioners. The measure provides for the establishment of a general council, to consist of five members nominated by the advice of the Privy Council, three for England and Wales, one for Ireland, and one for Scotland, also architects chosen by various bodies as follows:—Five by the Royal Institute of British Architects, one by the Royal Academy of Arts, one by the Royal Institute of Architects, Ireland, two by the Society of Architects, and two by the Architectural Association. It is proposed to keep a register upon which the names of duly-qualified architects shall be entered. A penalty is proposed for the use of the title "architect" by unregistered persons, and admission to the register after January, 1899, is to be by qualifying examination. The bill further provides that none but a registered person shall hold a public appointment as architect.

THE chairman and secretaries of the National Trust for Places of Historic Interest or Natural Beauty write: "Will you permit us, on behalf of the National Trust, to support the appeal of the Bishop Suffragan of Stepney for Bow Church? This beautiful old building—which has now for two winters stood with a tarpaulin to cover the roof—is perhaps the last relic of Chaucer's England left in East London, and is now in imminent danger of falling into complete ruin. A little timely help is all that is needed to save it; and with a view to obtaining this, an admirable and most conservative scheme of repair has been drawn up by the Society for the Preservation of Ancient Buildings, and accepted by the Bishop's Committee."

SIR NOEL PATON, in joining the National Society for Checking the Abuses of Public Advertising, has written an interesting letter to the Hon. Secretary, in which he states:—"Quite recently the practical value of such a society has been illustrated in an interesting manner in our city of Edinburgh. We occupy what is not only a city of exceptional natural beauty, but a city from whose small heart has radiated the romance of history as it has from scarce another spot in the world. The weirdly picturesque stretch of our old town 'Piled deep and massy, close and high' as seen from Princes Street, has long been vulgarised in daylight by an offensive display of Brobdingnagian horrors in the shape of gilt letter-signs; but it still presents by night a marvellous picture, all but unchanged by the lapse of centuries, of the body which enclosed in days gone by 'The Heart of Midlothian.' This

picture—of which we are justly proud—was threatened by a desecration almost unthinkable to those who have eyes to see. We were challenged to stand upon our defence; but no hand was raised till our Cockburn Association sounded the alarm. Then our Lord Provost spoke with no uncertain voice; the citizens of every degree rallied round him, and the danger is past—let us hope for ever. But without such an Association we should have been voiceless, and the ancient dignity of our maiden castle and its mighty flanking ridge would finally have departed under the insensate and remorseless clutch of the modern Moloch of Advertisement."

AN important new building is to be erected in the neighbourhood of Dulwich—the Horniman Free Museum, which its founder, Mr. Frederick J. Horniman, M.P., intends to present as a free gift to the inhabitants of that neighbourhood. The new building will consist of two galleries, each upwards of 100ft. long, lighted from the top. In addition, there will be a large lecture hall, having a seating capacity for 300 persons. Altogether the museum, including the administrative block, will be some 300ft. in length, and will present a very handsome appearance, its front being constructed entirely in stone, with a clock tower of striking design, over 100ft. in height. The galleries will be divided into various courts, each devoted to a separate class of the interesting objects of which the museum proper consists. Thus there will be a pre-historical court, an Egyptian court, an Indian court, a Colonial court, a Japanese court, and so forth, while there will be special departments for the zoological and entomological specimens as well as for the large library. The new museum, of which Mr. C. Harrison Townsend is the architect, will be within three or four minutes' walk of Lordship Lane and Forest Hill railway stations, and will thus be in the centre of a rapidly extending neighbourhood.

CERTAIN effects of the late Sir John Millais were disposed of at Christie's a few days ago. The collection of bric-à-brac and Art furniture of the late President of the Royal Academy was not very extensive, but—as was only to be expected—it was of excellent quality. Yet the prices realised, quite apart from the intrinsic value of the associations clinging to all the objects, were in many cases astonishingly low. A large proportion of the porcelain and faience was obtained at prices averaging about one and two guineas apiece. The bronzes fetched better amounts, and one pair of Louise XV. ormolu wall light, with terminal figures of cupids bearing scroll branches for two lights each, ran to as much as sixty-two guineas—the highest bid of the sale. The President's Chippendale, Sheraton, and other Old English furniture went in several instances at unaccountably modest figures, though four old Dutch walnut-wood chairs, with high open backs, were only knocked down when fifty-nine guineas had been reached. The total for the whole collection was something like £390.

THE question of settling the site for the permanent erection of the Boadicea statuary group, by Mr. T. Thornycroft, which has been presented to the London County Council by Mr. J. I. Thornycroft, was considered at the meeting of the Council last week. The Committee recommended the Council definitely to approve the Westminster Bridge site for the erection of the statue, and to authorise the Highways Committee to make the necessary alterations to the Embankment wall to enable the group to be placed in position. An amendment that the consideration of the matter should be postponed for three weeks, and that, in the meantime, the opinion of the President of the Royal Academy, the President of the Royal Institute of British Architects, and the First Commissioner of Works should be obtained as to whether they could suggest an alternative site for the statue, was lost.—Mr. W. W. Bruce moved that the matter should be referred back, in order that the opinion of the President of the Royal Academy might be taken on the subject. He thought

that the statue was quite unworthy of the site, and read a letter from one of the most famous French sculptors, who said: "If we put that up in Paris we should be laughed at."—Mr. Campbell, in seconding, severely criticised the statue, and also adversely commented upon London statues generally. Referring to the City Griffin at Temple Bar, he asked: "Could there be anything more barbarously absurd than that?" The site of the Boadicea statue would, in his opinion, add still more to the vulgarisation of Westminster Bridge.—Mr. J. Burns said the Council had given the best site to the statue. That was the opinion of the man in the street. It was now suggested that the Royal Academy should be called in. To be a member of the Royal Academy was not synonymous with a knowledge of Art, as many would say whose canvases would be rejected on the morrow.—After further discussion the amendment was put, and on a show of hands lost, and the report was agreed to.

A SCAFFOLD has been erected at St. George's Church, Bloomsbury, for the purpose of cleaning its portico of Corinthian pillars. This grotesque structure was designed by Hawkesmoor, a pupil of Wren's, and was finished in the thirties of the last century. The plan is said to have been suggested by Pliny's description of the tomb of Mausolus; but, notwithstanding, St. George's has all along been voted the ugliest ecclesiastical building of any pretensions in London. The statue of George II., at the top of the steeple, was characterised by Horace Walpole as a "master-piece of absurdity," and was, with the monarch at the summit, satirised by him in the following lines:—

When Henry the Eighth left the Pope in the lurch,
The people of England made him head of the Church;
But George's good subjects, the Bloomsbury people,
Instead of the Church, made him head of the steeple!

THE War Office, among other expenses in connection with the sanitary and various arrangements belonging to the military system, propose to carry out at once an extension of the quarters at Falmouth at a cost of £10,000; the erection of a drill battery at Cardiff, £6000; the drainage of Horfield Barracks, Bristol, £3000; and other works in different directions which will run into some £50,000 or £60,000. The whole of the work is to be completed within the year.

THE latest addition to the suburban playhouses will be the Kennington Park Theatre. The auditorium will have an average depth of 70ft. and a width of 60ft., and will be constructed on the two-tier system. The theatre will be heated and ventilated throughout on the plenum system, and fresh air of the required temperature will be distributed by flues and channels to the different parts of the house, the used-up air being forced out by means of exhausts. A complete set of hydrants and fire appliances will be arranged, and the stage is to be fitted with a double asbestos and steel fireproof curtain, controllable by one man. The latter is designed to be one of the largest in London—namely, about 80ft. wide and 50ft. deep.

THE Duke and Duchess of Fife's new residence, Mar Lodge, is getting on apace, and, owing to the open winter, is likely to be ready for occupation early in the autumn. Fine picked specimens of woods from the neighbouring forests have been largely used in panelling or in making balustrades and doors, and some of the pine and birch is quite equal in beauty to Oriental timber. The drawing-room is to be in the Adams style of decoration, and pink is the all-prevailing shade; even the tiles of the fireplace are to be of that delicate colouring. For the entrance hall, staircase hall, large and small dining rooms, Messrs. A. J. Arrowsmith and Co., of 80, New Bond Street, W., are supplying handsome plain oak Parquet flooring. Mr. A. Marshall Mackenzie is the architect; Messrs. McRobbie and Lulue are the contractors.

At the meeting of the London County Council last week the Improvements Com-

mittee reported that they are proceeding with the reference made to them by the Council in November last to consider the desirability of continuing the embankment of the Thames from the Victoria Tower Garden to Lambeth Bridge. Since the reference was made the promoters of the Victoria Embankment Extension and St. John's Improvement Scheme have deposited plans and a Bill in Parliament providing for an extensive private enterprise in laying out a large area of land in the locality in question, and the Council has already decided to present a petition against the Bill, and to take the necessary steps to secure opposition on the second reading. The Committee were not yet able to bring up a complete scheme of improvement such as they could recommend to the Council, neither was it possible for them to submit plans, or even approximate estimates of the cost, as the preparation of such an important scheme would necessarily involve much time and careful consideration. It had, however, been suggested to them that as the St. John's Improvement Bill was down for second reading last week, it was desirable that they should at once advise the Council to give them some definite instructions with regard to the formulation of an improvement scheme. Accordingly they asked the Council to pass the following resolution:—"That it is desirable that the embankment of the Thames from the Victoria Tower Garden to Lambeth Bridge should be undertaken by the Council, and that it be referred to the Improvements Committee to prepare and bring up a scheme for the consideration of the Council at the earliest date practicable, such report to deal with the question of the widening of Millbank Street and the utilisation of any surplus land which remains after carrying out the improvement." The Council, however, did not accept this recommendation, but adopted the following amendment:—"That it be referred to the Improvements Committee to prepare and bring up at the earliest date practicable a scheme for the embankment of the Thames from the Victoria Tower Garden to Lambeth Bridge, including the widening of Millbank Street, and the utilisation of any surplus land which remains after the carrying out of the improvement."

AFTER the gold-plated staircase and balcony that adorn Mr. George Gould's house at Lakewood, New Jersey, a stairway in Numidian marble seems hardly worth even a passing mention. But this is not quite so simple a thing as it seems—in cost, at all events. It is to decorate the new million-dollar mansion of Mr. Elbridge T. Geary, and is to cost the trifle of some £20,000, or at the rate of £500 a step. Its appearance is described as being hewn out of one single block of Numidian marble. At the bottom, on each side, are knights in armour holding torches of electric light.

VISITORS to the Teign Valley, especially those of an antiquarian turn, will have much to interest as well as to exercise their minds when examining the painted panels in the Lady Chapel of Ashton Church. These are six in number, and are of an undoubted pre-Reformation period, but how, when, and by whom placed there no one seems to know. Each panel has a different type of face, and may well indicate and illustrate the varied orders or ranks amongst the clergy of the Medieval Church. They are bold in outline, and are wonderfully well preserved. The new rector has done well to replace the Old Elizabethan pulpit to its former position near the beautiful chancel screen. For years it has been disused and relegated to a back corner in the nave of the church.

An important point was involved in a decision given at Aberdeen a few days ago. A house carpenter sued a shipmaster for £29 19s. 3d. Pursuer had contracted to build two dwelling-houses for defender at the west side of Balmoral Place, at the price of £1605, according to plans which had been submitted to him and specifications mentioned in an agreement. The plans showed a depth of

2ft. for the foundations of the houses, but it was found necessary by the pursuer, in order to get a solid foundation on the level, to excavate to a greater depth than 2ft., and he had therefore more mason work to build than he bargained for, and had in consequence to pay his sub-contractor £21 12s. 6d. extra. The balance of the amount sued for—£8 4s. 9d.—was made up of extras, which defender, however, offered to pay. Sheriff Robertson has issued an interlocutor giving decree for £8 4s. 9d., but finds that, as regards everything beyond that, the action is irrelevant, and is therefore dismissed, the defender being entitled to expenses. His Lordship, in a long note, says that, taking the legal position, it appeared to him to be quite clear that where there was an agreement to do any particular job for a lump sum, and the house has only to be taken over when finished, that the contractor had to do everything necessary to complete the whole, and what was necessary could not be considered as "extras," and the builder or contractor would not be paid for them above the contract price. The result was that if there was a lump sum contracted for to erect a building with no schedule of quantities, the builder took the risk, and he was the loser if there was any defect in the soil, and if there are mistakes in the calculations, and it was not sufficient that he builds according to the plans and specifications, if he did not thereby supply everything.

WRITING to the Times, Mr. Walter Cave, architect, says:—"The flagrant injustice of the remarks made by Sir W. Harcourt, on the New Scotland Yard building, in the debate in the House of Commons, must have caused a feeling of hopeless despair in the hearts of all artists in this country. If a design (which is considered masterly by those who understand these matters) is thus abused without a protesting voice from those in whose hands the Government building scheme rests, what hope is there for these new sites which have cost so much to acquire?" In a letter upon the same subject Mr. Walter Crane says:—"I quite endorse Mr. Cave's view of the fine qualities of Mr. Shaw's design, and agree with him in deploring the general ignorance or indifference to architectural design in high political places, although I must confess I did not see Sir W. Harcourt's remarks, and was not aware he was a great architectural authority. The notion, however, that architectural design consists chiefly in furnishing a sham Classic (or Gothic) façade to mask complex internal arrangements on a ground plan which has no relation to any historic style seems to me a most hopeless and injurious one. I believe the most competent architects always endeavour, by meeting the actual practical requirements and uses of a building, to give it character and expression, or rather to let its artistic expression be the natural outcome of its adaptation to human wants."

STILL another letter on the same subject. Mr. W. A. S. Benson writes:—"The architectural conundrum propounded by Sir Wm. Harcourt is complicated in a manner that has, I think, not yet been noticed, by the fact that Crosse and Blackwell's is also an exceedingly good building. Neither building is much bespattered with the archaeological tags that usually pass for architectural style, and by the presence or absence of which most people judge of a building. The number of those who are capable of appreciating a new work of any nature with reasonable perception is always very limited; most are content with prejudice and secondhand opinion. But of those who do care enough for Architecture to form their own opinions, I should judge from what one has heard said at one time and another that a large majority of votes would accrue to New Scotland Yard as the best exterior among recent public buildings, and I suspect that the School Board offices would take the second place. The Science and Art buildings in Exhibition Road, by the late Capt. Folk, would probably take a good place, though their style is a little out of the main trend of the effort of the day. The new Admiralty buildings would be much better if

they did in fact harmonise with the Architecture of the old buildings, which are not without their measure of quiet dignity if only they could be cleaned once in a generation or so. Poor Somerset House has been horribly disfigured by a yellow brick excrescence, overtopping the façade at one end; the sort of fate that is too apt to overtake fine buildings in our careless city. Somerset House is, indeed, a masterpiece which cannot be repeated on demand; but there are many grades of excellence that we might hope to attain and avoid sinking to a zero of imbecility, or below it to the wanton mess of forcing a Gothic archaeologist to build a Renaissance palace. That thinking men are agreed as to the futility of competitions, and there is no infallible method of securing the employment of the best artist; but probably the method of getting the practical requirements thrashed out by a committee with professional advisers who are not to be the final designers, offers a fair approach to the best procedure, provided the actual and responsible architect is called in before the plans are rigidly crystallized. For selecting the final architect, those who signed the manifesto in the Times would probably be as good a committee as could be named."

THE Metropolitan Asylums Board, at its last meeting, received the report of Mr. T. W. Aldwinckle with regard to the contract for alterations and additions at the South-Western Hospital. He stated that the total account came to £28,857, an excess of £4557 on the sealed contract. In explanation it was stated that additional foundations were found to be absolutely necessary, while it was impossible to re-use any of the old laundry machinery, thus causing extra expense on engineering work. Drainage was responsible for £586; but £370 was due from the Lambeth Vestry in respect of the new laundry wall. The report was referred to the Finance Committee.

THE Dean and Chapter of Westminster Abbey have passed a resolution re the Victoria Embankment and St. James's Improvement Bill, declaring that they wish to offer their strongest opposition to the measure on the following, amongst other grounds: That a great number of dwellings of the labouring classes ought not to be destroyed without preliminary provision being secured for the erection of buildings adapted to the same classes in the same neighbourhood, and that a site so contiguous to national and historical buildings should not be dealt with by a private company.

THE removal of the Liverpool churches of St. John, Old Haymarket, and St. George, Castle Street, whose demolition, it is generally agreed, will greatly improve the architectural aspect of the spaces in which they are situated, is, it seems, in the hands of the diocesan authorities, and is being managed for them by Messrs. Gamon, Farmer, and Gamon, solicitors, Lord Street. By the terms of the Act under which the sites have become the property of the Corporation, the ecclesiastical authorities are bound to remove both buildings within two years from July 15th, 1897. As a result, both churches are now on sale. A scheme was set on foot for the removal of St. George's Church to a site in Walton, but the idea had to be abandoned on account of the prohibitive expense. The fabric of this church, exceptionally heavy and solid in construction, includes enough hard white stone of the finest quality to build two modern churches of considerable size. There is also an organ of comparatively recent build, and a quantity of woodwork, a portion of it mahogany. If possible, the building will be sold as it stands, and, failing a reasonable bid within a certain period, will probably be offered at auction, either in one lot or in sections. Several inquiries from possible buyers have already been received from different parts of the country. As to St. John's Church, the fact of the building being merely sandstone, and without the architectural pretensions of St. George's, makes it very unlikely that it will realise anything more than an old song, its value being simply the worth of the old materials.

Constructional Steelwork.*

By T. C. CUNNINGTON.

(Continued from page 151.)

A FURTHER recommendation of the use of cement lies in the fact that the thermic expansion of Portland cement is practically the same as that of steel, a fact which ensures perfect cohesion under any changes of temperature. It has been suggested to rely entirely upon the preserving qualities of cement rather than upon a proper painting of the metal work. Prof. Bauschinger states that his experiments show a cohesion between steel and concrete after hardening of from 570lb. to 640lb. per square inch, which is more than the tensile strength of good concrete; but in building work a perfect union between the cement mortar and metal work can never be attained at all points, and a thorough coating of paint must largely be relied upon.

All constructional steelwork should therefore be well coated with either lampblack mixed with oil or red lead and linseed oil, the very best of materials being employed. The oxide of iron or mineral paint which has generally been specified for all painting of the metal work has been found to separate from the steel, and form an oxidation of the metal behind the paint. A mixture of red lead and linseed oil is now considered as the best protective coating for iron or steel.

Having regard to their importance in steel construction, we have dealt somewhat in detail with columns and stanchions, together with their foundations. We will now proceed to deal with girders, their connections and bearings, and the various forms of floors.

In designing a building numerous cases occur where a single joist-girder will not be suitable, and it may be necessary to increase the length of the spans, so as to reduce the number of the supporting columns or stanchions to the minimum; or perhaps heavy, concentrated loads, such as columns, stanchions, brick walls, chimney breasts and stacks, necessitate the introduction of plate and angle-ripped girders, or compound girders of joists and plates. Having calculated the loads on the several girders, it is an easy matter to determine the sections most suitable to the purpose. It frequently happens in designing a building that excessive loads are concentrated at two or more points of the floor, and in order to confine the construction within the limits of the design without increasing the sections where the minimum loads occur, recourse has to be had to various methods. The depth of the girder being reduced to the minimum in order to obtain the required strength, the flanges of the girders must be unusually wide, the webs well stiffened or trussed. An illustration of this occurs in the ground floor ceiling of the West Australian Bank, Cornhill, as also the ceiling of the news-room of the Shoreditch Library.

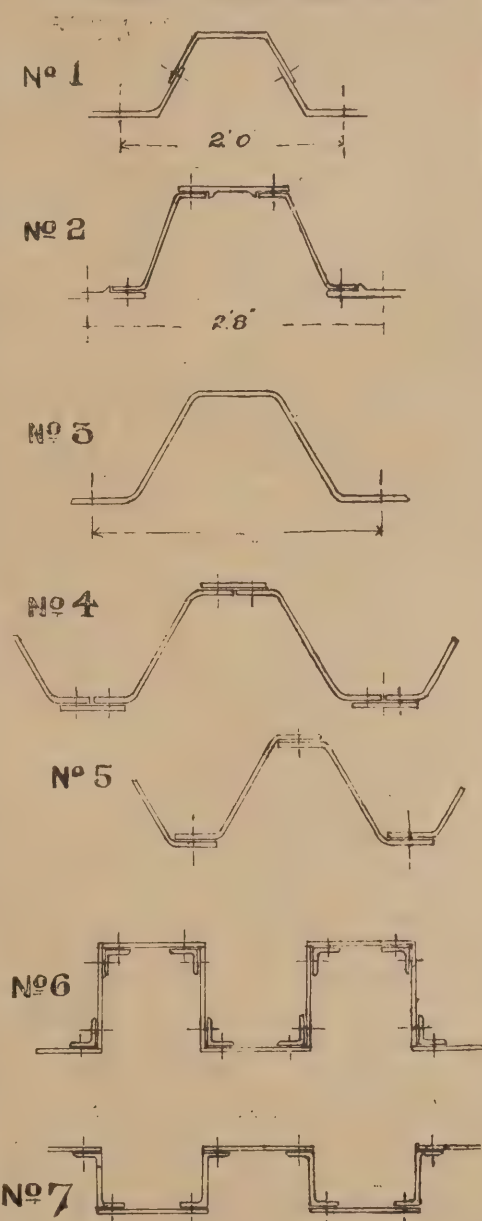
Where the ends of the girders rest upon the wall, it is advisable to use steel bearing-plates or joists to distribute the pressure over a greater surface, and thereby prevent the crushing of the material in the wall directly under the girder. In most cases a large tough stone will be sufficient, but where the pressure is heavy both plates and stone should be used. The average pressure per square foot for brickwork should not exceed six tons, and for stone twelve to twenty tons, according to its character. In calculating for loads upon girders where the bricks are laid regularly the probable line of rupture (providing the girder should fail) will be found to be inside of the sides of an Isosceles triangle, whose base is the span, and whose height is one-third of the span. In order to be entirely upon the safe side the weight of the wall between vertical lines directly over the girder, for a height equal to that of the triangle, is frequently adopted as the load to be carried. However, it should be noted that for green walls, or walls having openings, this rule does not apply, as the full height of the wall

between the points of support must be provided for.

Where the width of the walls, either internal or external, exceeds 14in. that are supported by girders, it is advisable to use compound girders or plate girders, and where plate girders it is preferable to have them double webbed, or box girders, the latter giving greater stability than the single web girder. In all built girders it is advisable that the flanges alone are to be considered as resisting the bending moments, and both flanges nominally of the same section. No angles used smaller than $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. $\frac{5}{8}$ in., and no webs of less thickness than $\frac{1}{4}$ in.

Stiffeners of tees and angle bars must be used where the depth of the girder is above a certain ratio in proportion to the web (say

SECTIONS OF "STEEL FLOORS"



seventy times), and disposed so as to resist the shearing forces upon the web. In all cases it is absolutely necessary that they are provided at all bearings, and at points of concentrated loadings, and where straight stiffeners are used (they being preferable in girders for building work) the ends of them, both top and bottom, must fit closely against the flange angles in order to fulfil their proper functions.

The safe loads for steel joists are given in the various merchants' catalogues, as also for compound girders made of joists and plates. In designing compound girders, say of two joists, with plate top and bottom, take the safe load given for the two joists, making due allowance for the quantity of material taken

from the flanges in the rivet holes, and the difference must be provided for in the sectional area of the plates. The distinct functions of the flanges and webs of all girders with thin, continuous webs are that the whole of the horizontal strains must be provided for in the flanges, the web practically taking no part in resisting them, neither are the horizontal flanges considered to take part in resisting the shearing forces, the whole of which must be provided for in the webs.

In selecting joists for girders, or similar purposes, the proportion of depth to length should not be less than one-twentieth of the span, otherwise deflection may take place.

Due allowance must be made for all holes drilled in the joists for connections, &c., more especially for such that are placed in the flanges. The depth of plate girders should be one-tenth to one-sixteenth of the span; the greatest economy of material is, perhaps, obtained at one-twelfth. For continuous girders, or girders fixed at the ends, the depth may vary from one-fifteenth to one-twentieth of the span, the width of the flange not less than one-thirtieth to one-fortieth of the span, and no plates should be less than $\frac{1}{4}$ in. thick.

The general formula for plate girders of this class is $S = \frac{WL}{8D}$

S = Strain on top and bottom flange at centre in tons.

W = Weight distributed in tons.

L = Length of girder (or span) in feet.

D = Effective depth of girder in feet.

Steel may be strained to seven tons per square inch in tension and compression, although some authorities limit it to six tons per square inch.

FLOORS.

Before considering the most economical arrangement of steelwork for floors, the question of loads, which very largely governs the design of the floor system, must be examined. The loads in building construction may be classified as dead, live, and eccentric loads, the principal affecting the floor systems are:—

Dead loads, comprising all of the static loads due to the constructive parts of a building, stationery machinery, water tanks, or other permanent loads.

Live loads comprise the people in the building, office furniture, moveable stocks of goods, or varying loads of any character.

The maximum live load per square foot is usually assumed as follows:—

For Crowd of people	80lb.
„ Floors of houses	40lb.
„ Theatres and churches	80lb.
„ Ballrooms and drill halls	90lb.
„ Warehouses, &c.	from 250lb.
„	upwards.
„ Factories.....	200 to 450lb.

while 80lb. is the maximum possible live load per square foot for a crowd of people (unless dancing be considered). Still, we can hardly expect to realise any such load under the conditions governing an office building. Large crowds very seldom collect in offices, except on the lower floors devoted to stores or banking purposes, and greater allowances are generally made for such places. The ordinary office furniture will certainly not exceed and seldom equal the weight allowed for persons, and hence additional security is introduced. These loads used in the calculations affecting the girders, columns, and stanchions, must not be confounded with the required loads for the strength of the individual floors, while the live load per foot super may be reduced over large areas in proportioning the girders and columns. The maximum possible live load must still be used when any single floor is considered by itself.

The practice in America seems to be pretty well defined in the matter of decrease of live loads per square foot, as they are transferred from beams to girders, from girders to columns or stanchions, and thence down the columns to the footings. This practice is founded upon the supposition that it is quite possible that the beams may sometimes have to carry their full capacity in live loads, while the chances are increasingly less that the girders or columns will ever be required to carry any

* Paper read before the Architectural Association on Friday, March 25.

where near their full capacity if a full load had been assumed. The fully loaded area would probably never be large, and a girder or column would rarely, if ever, lie in the centre of such area. The effect of a live or moving load, causing vibration in the parts of a structure, is also gradually lessened, as the vibration, if any, is taken up in the transfer of the load from member to member, so that by the time it reaches the footings, or foundations, the live load is ignored entirely.

As examples of this system of calculation the following may be mentioned. In the Venetian building in Chicago the beams were calculated for the following live loads:—

Upper floors per foot super	35lb.
Second, third, and fourth floors super	60lb.
First floor super	80lb.

Girders carry 80 per cent., columns 50 per cent. of the loads.

The weight of the steel girders and brick or tile partitions are actually calculated for a typical floor plan, and then rated at so much per square foot of floor surface. The dead loads assumed in the old Colony Building, Chicago, compressed:—

Flooring	4lb.
Deadening	18lb.
Tile arches	35lb.
Iron	10lb.
Plaster	5lb.
Partitions	18lb.
Total	90lb. per foot super.

giving the following results:—

	Beams.	Girders.	Columns.	Footings.
Live loads...	70	50	40	—
Deadloads...	90	90	90	90
Total	160lb.	140lb.	130lb.	90lb.

In the administrative block of the Royal Infirmary, Liverpool, which is five floors high, a similar system of calculation was adopted in regard to the strength for the lower columns and girders. In floors generally one of the main points to be considered is that they must be firm and rigid, at the same time as light as possible and subject to no vibration; to ensure this desideratum the joists must be of adequate depth.

With the several systems of fireproof floors we do not now propose to deal in this paper, as the subject is so comprehensive that it is desirable to deal with it separately.

STEEL FLOORING.

(The several systems of steel flooring, each having some special features and more suitable for particular purposes; taking the several sections illustrated on the sheets in detail.)

No. 1 is flooring made of steel trough bars of various sections and weights per foot from 4½ in. to 12 in. deep; the depth of the 12 in. section can be increased to 15½ in. deep by the addition of a bar. The sections up to 12 in. deep are rivetted together on the neutral axis, and the sections over 12 in. deep require two rows of rivets. This steel flooring is used in the floors of the National Liberal Club, Prudential Buildings, Holborn, Bishopsgate Goods Depot, and in a number of other buildings not necessary to mention.

Section No. 2 (Messrs. Wm. Lindsay and Co.) is rolled in depths 10 in., 12 in., 14 in., and 18 in. if required. In this section it will be observed the rivetting is on the top and bottom flange.

Section No. 3 is either rolled or pressed in several depths and strengths, and is used, as shown in illustration No. 4, with plain bar rivetted to both top and bottom, the edges of the troughs abutting. It is also used, as shown on illustration No. 5, with the troughs lapping and one row of rivets top and bottom.

Section No. 6 is a simple form of flooring, composed of plain plates and angles rivetted and connected as shown. It can be made any strength, depth, or span by increasing the sectional area of the plates and angles, or by increased depth. It is nominally the same price per ton as the other section. Where the ends bear upon the walls, steel or iron bearing plates must be provided, and it is advisable to

keep these plates a little distance in from the face of the brickwork.

These several classes of flooring can be fixed either upon the top or bottom flange of the girders, or upon angle bars that are rivetted upon the webs of the girders, and bolted down. These floors are well adapted for warehouses, factories, mansions, and public buildings, or in any situation where great and variable strains occur either by crowds or the vibration of heavy machinery. The strength of these steel floorings when rivetted together is considerable, as each trough may be treated as a girder; as the whole is rivetted together, no one portion can deflect without dragging down the adjoining troughs for some distance from the point of application of the weight.

At this stage it would not be advisable to go into the question of the finishing of the floors, as we consider it ought to be treated separately, or dealt with in a special paper. As before mentioned, in order to render a building fireproof where steel construction is used, it is absolutely necessary that every member of the construction must be thoroughly and adequately encased in some fire-resisting material, so as to remove the metal from the direct action of the fire, and if this particular is insisted upon we shall not have such lamentable catastrophes that continually occur, more particularly in city buildings.

We have not now time to discuss the very important subject of roofs, as it is one that requires to be treated also in a paper entirely by itself, from the fact of it being so comprehensive. The roof of the town hall of Oxford Municipal Buildings is an example of construction whereby the ceiling can be kept as high as desired, at the same time keeping the side walls down to the minimum. The same principle is also shown in the proposed detail of principals for roof over first-class swimming bath at Shoreditch Baths.

The only further example that may be referred to is the Gymnasium Roof at Kingham Hill, which stands independently of the walls, part of them on plate girders, 40 ft. span, and the remainder on the usual stone templates. In conclusion, although I have dealt with the subject somewhat in detail, and given examples of practical work, most of them being works executed, a great many points in reference thereto have not been mentioned, more particularly "independent structures," "bracings," and questions analogous thereto; but having had the opportunity of laying the subject before you, I hope it may prove an incentive, and receive that attention which so important a subject demands in connection with the practice of the architect.

Mr. H. W. Pratt (President), in opening the discussion, said if engineers had more to do with constructional steelwork than architects, it was the fault of the latter, through not studying the engineering part of the construction of buildings more than they did. He thought it was desirable that, as architects, they should look a little more closely and deeply into the engineering department of their work. Life was too short for them to go into the subject thoroughly, but they ought to understand the principles with regard to these things, and if they had not the time and opportunity of working out the strains and stresses of different forms of construction, yet they should not entirely neglect the subject to place full reliance in the engineer. A short time ago the Discussion Section was debating the relation of the engineer to the architect and the architect to the engineer, and the general feeling of the meeting was that architects and engineers should work more together, that architects could not do without engineers, and that engineers could not do without architects. At the rate iron and steel construction had been going on within the last ten or twenty years, architects had been left considerably behind in the race. The engineers had overtaken them, and architects were necessarily compelled to call in their aid. Mr. Cunningham, who was an old member of the Association, was trained as an architect, but left the Profession and allied himself to engineering. There was one point upon which he disagreed with him, namely, his reference

to the application of architectural detail to engineering construction. He thought it was a pity that engineers did not leave Architecture alone when it was applied in the manner suggested. As architects, they would prefer that architectural forms of caps and bases were left out of iron construction in that way, because it was very evident it was not the proper treatment. If engineers thought their work could be made architectural by the application of forms in that way they were mistaken from the architect's point of view.

Mr. Richard Morland remarked that an important point for study was to design so as to have girders with as large a span as possible, in order to use as few columns as they could. With regard to fireproof construction, he said he considered porous plaster was the best, as it was non-conducting. They would notice that in fires, plaster, if well made, often broke the construction it covered. He thought it was possible to make a covering for iron work in porous material.

Mr. Gifford Reed spoke upon the necessity of a thorough knowledge of the subject, not only from a scientific point of view, but also of the calculation and theoretical part. They must know the trade, and the habits of the trade. Recently he was designing a certain column of square section of simple form to carry four arches. He went to ascertain the price, and it came to about £25 per ton, but on looking into the matter and using other columns, he was able to get the work done for £5 or £6 less per ton. With regard to foundations, the system adopted in the Marguerite Building, Chicago, referred to by the lecturer, was very largely carried out in the city, because it was lying almost upon a morass, on the top of which was a layer of hard clay. After getting through this layer of clay they would have to go 60 ft. before reaching the hard clay again, and therefore it was very desirable not to break through the upper crust, hence the necessity for spreading out the foundations to give as little pressure per foot as possible upon the upper clay. The same thing was done not long ago at St. James's Square, London, where the new buildings were sunk lower than the old ones, as they found a bed of very soft sand, and the foundations had to be taken down a good depth and a large mass of concrete put in. The old houses were very high, and they were simply founded upon the top clay, which was sufficient to hold them up, he daresay, quite as well as the foundation would the new buildings. The speaker preferred round columns for carrying loads, but it was a matter of some difficulty to attach girders at any point of them. Dealing with the lecturer's observations on painting ironwork, the speaker mentioned that he had had a good deal of experience with oxide paints, and found, when he analysed them, that very few were oxide. If they used a paint of 60 per cent. pure oxide and well treated with pure linseed oil, they would have a paint for ironwork that he guaranteed would not scale off—a paint that would run easily, and would cover twice as much as the ordinary oxide paint. Of course, in painting ironwork it was very necessary to see that it was perfectly clean, and that the scale was off, otherwise, if the scale was painted over, it came off together with the paint. He did not think rust would go on behind a coat of paint unless the paint was porous. Adverting to the question of the relationship of the architect and the engineer, Mr. Reed said that generally architects were dealing with materials which had been used for ages in the construction of ordinary houses and dwellings, and even in these days, they preferred to build in brick and stone rather than in iron. When an architect had a brick or stone building to erect, for instance, in any one of the streets of London, he might have as beautiful and artistic a design as it was possible to carry out, but there was always something to come in and hinder, or rather obstruct, the legitimate use of that particular material with which he was working, brick, terra-cotta, or stone. Nowadays there was a demand for so much light and room, and therefore, if building a shop, he had to have a large front, with a large open space behind. Consequently he

had to take advantage of new and modern material to assist him over his difficulties, which he would not get over so easily by using his own legitimate material, brick or stone. He had heard architects deprecate iron and steel construction, as being used so much nowadays, but it was of great advantage if used properly. It enabled the architect to span over large spaces, and to go on with the architectural treatment by painting or by covering with plaster, &c., and to make the design satisfactory to himself and secure the strength that would not be obtained in the other material. Iron and steel could also be employed as decorative material, and that was where they would find it easily adapted for the various kinds of roofs. It was very necessary that engineers should also know something of Architecture, but perhaps it was more necessary for architects to have a knowledge of engineering.

Mr. Banister Fletcher, proposing a vote of thanks to Mr. Cunningham, recommended a glance at the roofs and galleries of the Paris Exhibition for beautifully shaped stanchions. He did not think engineers had much to flatter themselves about in the use of iron as a fireproof material. They could not expose it anywhere in a building if they wanted it fireproof, and therefore had to conceal it. It seemed to him that box girders was a mistake, unless they could get inside to paint them, otherwise they could not be painted more than once. Whilst paying all due respect to the engineers, the speaker regarded many of them as interlopers, for a great deal of the work done by them was legitimate architectural work.

Mr. E. H. Brodie seconded.

Mr. M. Fawcett said he had abandoned the architectural profession for that of a constructional engineer.

Mr. Cunningham, responding to the vote of thanks, urged the advisability of the architects and engineers working together.

The foundation-stone has been laid of the new infirmary being erected on Highgate Hill by the Islington Board of Guardians. According to the plans of Mr. William Smith, the architect, the infirmary, when finished, will consist of five blocks, the central one being destined for the administrative departments, the kitchen and stores, while on either side, at right angles to it, will be two blocks, containing in all sixteen wards of thirty-two beds each, six of thirty, and six of eighteen beds, providing for 800 patients. The lowest estimated cost will be £200,000.

As a memorial of Lady Victoria Long Wellesley, to whose generosity the erection of the present church of All Souls at Eastbourne is largely due, a series of six stained glass windows have been placed in the apse—three on either side of the centre light. This centre light comprises the figure of our Lord as "the Good Shepherd," and the verses of the 23rd Psalm are enshrined in six of the panels below the windows of the apse. The pastoral type of the original memorial has been extended to the memorial to Lady Victoria herself. The central figure of our Lord as the Good Shepherd remains exactly as Lady Victoria left it, but the top of the panel and the ornamental work above and below have been assimilated to the new windows, so as to ensure harmony of treatment throughout. The shape of the window spaces—long and very narrow—made it advisable that the figure scenes should occupy panels only, the space above and below being filled in with ornamental work, and as the existing ornamentation in the sanctuary consists entirely of conventional forms of foliage and flowers, the same method has been allowed in the new windows. The artistic aim all through has been to make the windows as little conventional in style as possible. The figures are in perfect drawing, the countenances are fully studied, the grouping good and the perspective excellent—in fact, the panels are true pictures which tell their own story. In the decorative work, too, care has been taken that every stem leaf and flower shall be natural—only as Mr. Ruskin would say, "in service" i.e., bending its stem and grouping its leaves and flowers in accordance with the space to be occupied.

KEYSTONES.

THE Plans Committee of the Aberdeen Town Council have just passed twenty-two sets of plans of property, representing a total of £53,000. The plans were principally those of tenement houses.

THE new Market Hall, recently constructed in Dockray Street, in the borough of Colne, has been opened. The building has cost altogether, with the land, the town's market ground, and the fish market, about £9000.

A FURTHER extension of the Church House, Westminster, is contemplated. It will consist of nineteen rooms, with a hall for the assembly of the House of Laymen. The new work is already completely planned, and it is to cost £18,000.

THE West Ham Town Council has adopted the plans prepared for the new museum to be erected on the site in Romford Road adjoining the Institute. The buildings, which have been designed to harmonise with the Institute, are estimated to cost £4000.

ANOTHER old hostelry is doomed. This is the Crown at Plaistow, an inn which is said to have been erected four hundred years ago, and which will cease to exist when the new building, now in course of construction, is completed.

THE Shipley District Council has decided to invite four architects to prepare designs for new offices, fire brigade station, baths, stabling, &c., and that they be paid a fee of twenty guineas each, except the successful competitor, who will be paid by commission.

A NEW altar has just been erected in the church at Borris (county Carlow). The work, which is in pure white Carrara marble, has been designed and executed in the richly-wrought style of the fifteenth century, under the superintendence of Mr. M. J. C. Buckley, Kilkenny.

THE Jodrell Arms Hotel, at Whaleybridge, Derbyshire, is being rebuilt and enlarged. The front portion, which was supported by girders and pillars, and on which several men were working, suddenly collapsed a few days ago. It is supposed that the girders which supported a division wall between floor and roof gave way.

IMPROVEMENTS are to be carried out at Lord's Cricket Ground. The old tennis court with the adjacent buildings is coming down, and the corner of the ground next to St. John's Wood Road, where these buildings stood, is to be banked round. A new tennis court and a new racquet court are to be built behind the pavilion.

PLANS have been prepared for the completion of St. Matthew's Schools, Blackburn, by the erection of a north wing abutting on Withers Street and Cambridge Street. This wing, with the adjoining class-room, will provide accommodation for 250 boys. The estimated cost of the proposed extension is about £2000.

A FEDERATION of Master Builders' Associations in Lancashire and Cheshire has just been concluded, and the rules will shortly be issued to the members of the trade in the two counties. The new organisation is formed on the lines of the Engineering Employers' Federation, and its affairs will be controlled by an executive council, the first president being Mr. R. Neill, of Manchester.

A LOCAL GOVERNMENT BOARD inquiry has been held in Nottingham with reference to the proposed demolition of houses in connection with the scheme for a new street from Lower Parliament Street, traversing the site of the old gaol in John Street, to St. Ann's Well Road. It was stated that nearly 300 houses of the smaller class would be required, and would be demolished a few at a time.

THE Lambourn Valley Railway, which will bring the old world town of Lambourn and a number of villages into direct connection with the Great Western system at Newbury Junction, passes several places which have not as yet had the advantage of railway accommodation, including Speen, Stockcross, Boxford, Welford, Stefford, East Garston, and East Bury. The works have been carried out by Messrs. Pearson and Co., of Westminster.

Professional Items.

BIRMINGHAM.—Mr. Thomas Sergenson is about to proceed with his scheme for building a new theatre in Birmingham. To Mr. Frank Matcham, of London, has been allotted the task of preparing the plans. The total area of the site is 2800 square yards. The building will be arranged on the most approved lines, both in regard to the auditorium, stage equipment, and other respects, whilst the elevation will be of handsome and imposing design. The main entrance will be placed at the corner of Ryder Street and Corporation Street, but the whole extent of the frontage in the latter thoroughfare will be devoted to shops of a first-class character—eight in number—with either residential chambers or offices above, a lift and other appliances being provided for the accommodation of occupiers. The property on the Dalton Street side of the building will be utilised as warehouses and business premises of similar description. The stage will be of large dimensions, 70ft. wide by 45ft. deep, with the necessary dressing-rooms, scene-dock, dynamo-room, &c. The pit, which will be on the floor-level, will provide accommodation for 800 persons, with 150 stalls immediately in front. The dress-circle and stalls will be reached by means of a spacious vestibule and staircase in marble and mosaic. A decided novelty will be noted in the placing of the private boxes—five of them—at the extreme back of the circle, instead of at the sides nearest the stage, as has been the practice for many years, though there will almost of necessity be a couple of stage-boxes in the accepted position. The dress-circle will seat 275 persons, which, with the twenty-five provided for in the boxes at the rear, will bring up the accommodation in this part of the house to 300. In addition to this, a capital view of the stage may be obtained from a commodious lounge and promenade, extending from the ends of the circle to the stage-boxes on either side, fronted with richly-decorated Moorish alcoves, which, in themselves, will greatly add to the architectural beauties of the interior. The scheme of decoration will be Moorish throughout. The total cost of the building is estimated at something like £50,000 or £60,000.

BOGNOR.—Mr. Boddie, of Aberdeen, was the successful competitor for a fountain to be erected at Bognor. The fountain will be about 13ft. high, and on each side is formed a projecting moulded basin. The upper part of the die-block is of octagon shape. On it rise four pillarettes, supporting a circular canopy, consisting of frieze, cornice, and dome. The finial will consist of a copper Imperial Crown. Enclosed by the pillarettes is a miniature fountain playing from a granite basin, which will have more of an ornamental character as compared with the usefulness of the jets. The fountain will be constructed of Rubislaw grey granite, except the drinking basin and the pillarettes, which will be in pink Peterhead stone.

BOSTON.—The foundation-stones of the new Wesleyan Sunday Schools at Boston have been laid. The contract for the erection of the building has been obtained by Mr. W. Greenfield, of Boston, and the cost is estimated at about £2000.

FRASERBURGH.—Fraserburgh Parish Church is to be improved. Mr. A. Marshall Mackenzie, Aberdeen, has prepared plans and specifications for the carrying out of the work, which will cost about £2000. The steeple is to be heightened and a porch added to the front, while new cornicing, pinnacles, and balustrades are to be placed in the front of the building. The interior of the church is to be completely reconstructed. The pulpit is to be shifted to the east end in an apse, which is to be built over the present vestry. The church is to be lighted with leaded lights, while the roof is to be reconstructed and formed with an arched ceiling.

HUNTINGTOWER.—A new church hall at West Huntingtower is to be built in connection with the Tibbermore Parish Church. The building will consist of a hall 54ft. by 31ft., with retiring rooms, the length of the whole building being 73ft. and the breadth 35ft. The plans have been prepared by James Smart and Son, 3, New Scott Street, Perth, and the work will be carried out under their charge. The following are the successful contractors: Mason work, J. and P. Keay, Methven; joiner work, T. D. Falconer, Perth; plumber work, William Frew and Sons, Perth; slater work, James Buchan, Perth; plaster work, Alexander M'Ritchie, Dundee.

ILKESTON.—A new Wesleyan chapel has just been opened at Ilkeston. The new chapel, which is of Gothic design, with east window, has four entrances to spacious lobbies. It is constructed of red bricks, with terra-cotta and stone dressings, and has a tower and spire 120ft. above the street level. The final decorations are surmounted by a Jubilee cross. The edifice is 86ft. long from east to west, 62ft. wide across the transepts from north to south, 44ft. in width across the main body of the orchestra, and 21ft. 6in. across the orchestra, and 21ft. 6in. across the large vestry. There are also two other vestries. In addition to the large east window, there are thirty-four side windows, and eight oriel windows, which light the chapel by day. Sixteen pendants and twelve wall brackets, carrying incandescent gas burners, light the place by night. The front lobbies, staircases, landing, vestries, &c., are lighted by the same means. There is seating accommodation for 940 adults, or a mixed congregation of over 1000. The fittings are of pitch pine, varnished, and the glazing is of half-tint cathedral glass. The chapel is ventilated by means of thirty-four special inlets, and two large Boyle ventilators on the roof; while, in addition, there are eight oriel windows in the side gables. All the front entrance doors are made to swing both outwards and inwards. The chapel has been built by Messrs. J. H. Vickers and Son, Nottingham, at a cost of £5500, the architect being Mr. George Haslam, of Ilkeston.

LEEDS.—The Guardians of the Leeds Union are about to erect, at the Workhouse, Burmantofts, new imbecile wards, the foundation-stones of which have just been laid. The pavilion plan has been adopted—a building for males on the one side, another for females on the other side, and an administrative block between, the whole connected by covered corridors. Accommodation for over one hundred patients in all will be provided, and the arrangement will admit of an extension, should circumstances demand it, at a comparatively small additional cost. The administrative department will be of one story, comprising receiving and inspection wards for each sex, rooms for the medical officer, waiting-rooms, and padded-rooms. Adjoining the kitchen will be the dining hall. The male and female attendants will have separate mess rooms, adjoining the kitchen. The pavilions on the right and left will accommodate fourteen imbeciles and eleven epileptic patients of each sex on the ground floors, and thirty-four imbeciles of each sex on the first floors. Each pavilion will be provided with bath-rooms, &c. There will likewise be day rooms, these facing the south, and covered verandahs will afford shelter for the inmates who can make use of those retreats. Provision is made for a classification of the patients both in the wards and in the day rooms, there being a considerable number of single apartments. For the attendants there will be, on the second floors of the pavilions, comfortable bedrooms and sitting-rooms, with bath-rooms. The buildings will be substantial, but plain. About £14,000 is the estimated cost. The contractor for the excavation, the bricklayer's, mason's, and joiner's work is Mr. Wm. Airey, of Servia Road; for the slater's work, Mr. T. C. Heavyside, Roundhay Road; for the plumber's and glazier's work, Messrs. Braithwaite and Co., Swinegate; for the plasterer's work, Messrs. Wheeler Bros., Calverley; and for the painter's work, Messrs. Roylance and Horseman, St.

Mark's Road. The plans have been prepared by Mr. J. Mitchell Bottomley, Albion Street, under whose supervision the work will be carried out, with the assistance of Mr. Prentice, clerk of works.

LITTLE ILFORD.—The nave and aisles of the new church of St. Michael and All Angels, Little Ilford, have been consecrated. The church is in Romford Road, Manor Park. It is of red brick, with white stone dressings, and is surmounted by a spire. Only the nave and aisles have as yet been built. The cost of the work now completed is £4850. The interior walls are plastered, and the arched roof is supported by white stone pillars. The floor is of wood blocks, and the benches are painted dark green. The windows contain light-tinted cathedral glass, in lead sashes.

LIVERPOOL.—What is probably the quickest building feat yet accomplished in the United Kingdom took place recently. A large iron school to accommodate 600 children, under the auspices of the Liverpool School Board, situated at the North-end of the city, was taken down, removed to Wavertree, and re-erected, including the putting in of brick foundations, levelling and cinder of site, lighting, children's offices, heating by hot water pipes, water, gas, and drain connections (the latter to a depth of 30ft.), and enclosure of site with iron railings, in the remarkably short space of fourteen days. The work was carried out by Messrs. E. F. Blakeley and Co., Vauxhall Iron Works and Banastre Street.

LONDON, S.E.—The new baths and wash-houses, built by the Newington Vestry in Manor Place, Walworth Road, have been opened. The building has a frontage no less than 284ft. long, with a picturesquely broken outline. There is a tower with a clock and three dials. There are steep roofs, jutting windows, red brick walls contrasting with terra cotta columns, cornices, and other embellishments. Part of the building has two floors, but the central portion, surmounted by a turret, has three. The style is Renaissance, freely treated. Messrs. P'Anson and Sons are the architects, Messrs. Balaam Bros. the builders, and Messrs. Clarke and Sons the engineers.

MANCHESTER.—The Owens College buildings will receive in the course of the next eighteen months or so a very substantial addition by the erection of the new Whitworth Hall. The hall, standing at the intersection of Burlington Street and Oxford Street, will complete the College quadrangle, and will form a connecting link between the museum and the Christie Library. Messrs. A. Waterhouse and Son, architects, in preparing plans for the new edifice, have adopted a modification of the style employed by them in their design for the museum, the elevation plans being in perfect harmony with those of the museum, although there is no attempt at imitation. Constructed of Minera stone, the eastern side of the hall, fronting Oxford Street, will rise to a height of some 50ft. It will be pierced by a double row of apertures, of which the lower will be somewhat plain in character, more important treatment being reserved for the upper tier, which will consist of four large eusp-headed, transomed, two-light windows. This eastern frontage, agreeably broken by buttresses, will be further diversified by the principal public entrance to the building from Oxford Street, which will be developed into a very prominent feature, emphasis being given to it by two small pinnacled turrets rising to a considerable height, while strong detailed treatment will be bestowed on the gabling over the doorway, which will be crowned by graceful lancet-like windows. Immediately beyond this important feature will rise, at the south-eastern corner of the building, an imposing turret, which, with its fellow at the opposite angle, will flank the great traceried Perpendicular window in the south front. The roof will be remarkable for its high pitch, rendered necessary by the interior treatment. Along the entire length of the building will be the great hall, which will measure just over

120ft. by 50ft., its height up to the roof-plate being 35ft., and to the visible apex 56ft. 6in. This open-timbered roof will represent a modification of the hammer-beam treatment, and will be, of course, a very important feature in the interior design. Seats will be found for 977 persons. The total cost of the building may be roughly estimated at about £42,500.

NEW TOWN (Norfolk).—The new church of St. Paul's, at New Town, has just been dedicated. The building has a brick base, the walling above being of half-timbered construction, filled in with buck-nogging. The timbers show externally, and are of dark oak colour, and the buck-nogging between is finished with rough cast of a buff tint. The roofs are covered with red tiles, the windows have cinquefoil cusped heads and carvings, and are filled in with leaded cathedral glass. The bell turret at the west end is of oak, covered with oak shingles. The building comprises a nave 6ft. by 30ft., chancel 24ft. by 16ft. 6in., an organ chamber, and a roomy porch, with doors opening outwards. The church, when finished, will also have an additional porch, clergy and choir vestries, and a church room, 26ft. by 15ft. Internally, by an ingenious arrangement of pitchpine posts to the nave on either side and a special construction of the nave roof, the church can at a future time be considerably enlarged at a small cost. The nave roof is of open-timber construction, with carved principles, and the treatment of the chancel screen is in character therewith. The architects for the church are Messrs. Bottle and Olley; general contractor, Mr. W. Cork; plumbing, glazing, and painting by Mr. Rushmer, and gas fittings by Mr. Pank.

PERTH.—A new public hall for Craigie, Perth, has been opened. The plans were prepared by Mr. G. P. K. Young. The new building consists of a hall about 50ft. by 26ft., entered by a corridor, with ladies' and gentlemen's retiring rooms and a large committee room on the second floor. The hall has accommodation for 300. The front elevation is to be built of red stone ashlar work, and somewhat decorative in its details. The other elevation of the building will be very plain, and there are dwelling-houses on each side and gardens at the back. The roof is to be an open timber framing and plaster panels. The building is to be lighted principally by roof lights, while there will be three light windows in each gable. It is to be heated by means of hot water pipes, and ventilation will be received from an inlet passing overhead. The total cost of the hall will be £1435.

RADSTOCK.—The new Victoria Hall has just been opened. The building was designed by Mr. Wilcox, and is built of local white lias stone, with freestone dressings. The principal room, the lecture hall, is capable of holding 500 persons. There are also reading-room, refreshment and recreation rooms, library, offices, and caretaker's house. The work has been carried out by Mr. Joseph Bird, builder, Radstock, of a cost of £1100.

SPORLE.—The fine old Parish Church of St. Mary is closed for the purpose of undergoing a further and much needed restoration, the principal works undertaken being a new roof to nave and north chancel aisle in oak, taking off, recasting, and relaying the old lead, taking down and rebuilding the south nave arcading with clerestory over, both of which are in a dangerous state, and reinstatements of the ruined north chapel and sacristy. The cost, it is estimated, will not be less than £2000. Messrs. Cornish and Gaymer, builders, of North Walsham, are executing the work from designs supplied by Mr. H. Green, of Norwich.

WAKEFIELD.—Plans of proposed alterations at the Clayton Hospital, Wakefield, have been prepared by Mr. W. Watson, approved by the Hospital Committee, adopted by the City Council, and tenders are now being invited. The consulting rooms, which have long been inadequate, are to be enlarged, a new mortuary is to be erected, and a new laundry is to be built

Under Discussion.

CONTRACT CONDITIONS.

A conference between the architects and the Building Trades Federation has been held in the Masonic Hall, Forfar, to discuss the general conditions of contract recently issued by the Scottish Building Trades Federation. The conditions were discussed very fully, and compared with the new Dundee conditions and mode of measurement as agreed on between the architects and building trades of Dundee. The meeting seemed to favour the adoption of the Dundee rules, but left the final decision to a further meeting.

FEDERATION IN THE BUILDING TRADE.

A meeting has been held at Birmingham to consider the question of establishing a branch federation of employers in the building trade for the Midlands in connection with the National Association of Master Builders. Resolutions were passed that the Midland Branch of the National Federation should embrace the area covered by the following counties—viz., Warwick, Worcester, Stafford, Salop, Derby, Leicester, Northampton, Nottingham, Rutland, Lincoln, Huntingdon, and Cambridge. A representative committee was appointed to arrange the necessary details.

THE EDINBURGH ARCHITECTURAL ASSOCIATION.

The members of the Edinburgh Architectural Association recently visited the Museum of Science and Art by the kind permission of Sir R. Murdoch Smith. The Curator, Mr. D. J. Vallance, who conducted the party, gave a general description of the building, the dates and methods of its construction, the precautions taken against fire, the heating arrangements, and the workshops. Explanatory remarks were also given of the arrangement of the collections, and attention was drawn to the more important specimens.

THE INSTITUTE OF BRITISH DECORATORS.

A general meeting of the members of this Institute was held in the Painters' Hall, Little Trinity Lane, London, recently. The Secretary (Mr. W. B. Crawford, Glasgow) read a letter recently received from the Clerk to the Privy Council, intimating that their Lordships did not see their way to recommend Her Majesty to grant the charter applied for. —Mr. Bonnar (in the chair) stated that, while the refusal of the charter was to be regretted, it would not prevent the Institute from going on and overtaking practically all the objects aimed at, which no doubt would result in elevating their craft and making it attractive to capable young men of artistic tastes. Mr. Bonnar then vacated the chair, which was taken by Mr. J. D. Crace, as President-elect of the Institute when incorporated. —Mr. Crace, like Mr. Bonnar, regretted the result of the application to the Privy Council, but stated that the refusal might be the means of making them more zealous in showing the good which the Institute was bound to confer upon all those connected with their craft, and who had its best interests at heart. He further stated that, for administrative purposes, it was proposed to incorporate the Institute in terms of the special provisions of section 23 of "The Companies' Act, 1867," applicable to Art and Science associations. This course had been recommended by the Council of the Institute, and over one hundred members who were unable to be present had sent to the Secretary their approval of it in writing. —Mr. Thomas Bonnar (Edinburgh) then moved the following resolution, viz.: "That this general meeting of the members of the Institute hereby resolve to apply for its incorporation in terms of the provisions of Section 23 of The Companies' Act 1867." —The motion was seconded by Mr. J. C. M. Vaughan (Hereford), and on being put to the meeting was unanimously agreed to. —Mr. Charles Carlton (Glas-

gow) then moved: "That the persons named in Article 3 of the draft charter submitted to the Privy Council, with the addition of Messrs. William Allen and Thomas Preston, be deemed to be the promoters and managing body of the Institute in terms of the Board of Trade regulations, with power to add to their number; Mr. J. D. Crace to be president and convener." The motion was seconded by Mr. Henry Gibson (Dublin), and unanimously agreed to. —The third resolution was moved by Mr. Mawer M. Cowtan (London), and was in the following terms, viz.: "That the persons afternamed be appointed a committee to take all necessary steps for the incorporation as aforesaid, viz.: Messrs. J. D. Crace and M. M. Cowtan (London), Mr. A. G. Whyte (Liverpool), Mr. J. C. M. Vaughan (Hereford), Mr. Thomas Preston (Burnley), Mr. Thomas Bonnar (Edinburgh), Mr. R. J. Bennett (Glasgow), Mr. Henry Gibson (Dublin), and Mr. J. Sibthorpe (Dublin); Mr. Crace, convener." The motion was seconded by Mr. Maurice E. Dockrell (Dublin), and unanimously adopted. —Mr. Vaughan moved: "That in view of the early incorporation of the Institute, the committee beforenamed be empowered to make such provisional arrangements as they may think expedient for placing the Institute on an active basis as soon as incorporated, and to report." —The motion was seconded by Mr. W. G. Sutherland (Manchester), and unanimously adopted. —The labours of the Secretary were cordially acknowledged in a vote of thanks at the close of the meeting.

"ARCHITECTURE v. BUILDING."

Lecturing on this subject at the Carpenters' Hall recently, Professor Banister Fletcher pointed out that the great end of Art was pleasure, and then proceeded to describe the affinity of Art and Architecture. To show how practical was the work of the architect, he gave some drawings of buttresses, indicating first the ordinary "shore" of the builder, and secondly the same end accomplished by the architect's more pleasing buttress and flying buttresses. The point the speaker emphasised was that no ornamentation of Architecture could be good which structurally was bad, and this he illustrated by a specimen of an exceedingly ugly decorated French buttress. Passing on to the necessity of the study of proportion as an essential characteristic of Architecture, the professor gave some useful rules which might be generally applied in the construction of ordinary houses, dealing more especially with the proportions of windows, doors, and staircases. Many excellent views were shown, some of them of the most admired architectural types known to the world; and, as a concluding remark, the lecturer pointed out that nothing was beautiful in a design unless it was meant to serve some good end.

COST OF GAS AND ELECTRICITY.

At a recent meeting of the Royal Scottish Society of Arts at Glasgow, Mr. Andrew Beatson Bell, president, in the chair, Mr. G. K. Grieve read a paper on "The comparative cost of gas and electricity as sources of light, heat, and power." For the purposes of the lecture the hall was fitted up with incandescent gas lamps, and an inquiry into the cost of the two illuminants showed that lighting by electricity cost four times as much as lighting by these lamps. He came to the conclusion that heating by gas, as compared with heating by coal, was, at present prices, two and a half times more. He found it impossible to estimate the cost, from actual results, of heating apartments by electricity. In America it was found that heating cars by electricity was about five times the cost of heating by coal. He had himself experimented with heating water by gas, and he found that the cost which was given out by heating water by electricity was twelve times more. As to the relative costs for motive power, the cost for electricity in Edinburgh would be three times that for gas. Although it was evident that there were difficulties to be overcome, electric traction appeared to be coming.

Enquiry Department.

TO BUILD A VILLA.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would any of your correspondents forward me a working plan of a villa with bay windows for the bottom front rooms, with the front entrance between the windows? The house to be of yellow brick, and the windows red. The size of the rooms: Dining-room, 14ft. by 12ft.; drawing-room, 12ft. by 12ft.; sitting-room, 12ft. by 10ft., and kitchen, 10ft. square. Bedrooms to correspond, and a small outhouse. Whether the above described house could be constructed for £150 to £200, including labour, but not the ground, and, if so, what quantity of bricks, wood, slating, or tiles, with mortar, would be necessary for the purpose? If these questions could be answered by any of your correspondents, I shall be pleased to hear from them.—I am, Sir, Yours obediently,

I. C. B.

R. E. EXAMINATION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I intend reading the necessary course for an assistantship of the R.E., and, as there is a paper on sanitary engineering in this examination, I shall be glad if you will let me know if Baldwin Latham's "Sanitary Engineering," second edition, 1878, is modern enough for this purpose. Also if the four volumes of Rivington's "Building Construction" would be sufficient. I hope you will pardon my presumption, but away in the North of Ireland here there is no technical school or college where such information is imparted, consequently we have to "jog along" just as best we can. I may add that I get a great deal of information from your paper, and latterly from your newly-opened supplement. Would it be too much trouble to ask your opinion about the stiffness of this examination? I would be very grateful for your opinion.—Yours truly,

"HANDICAPPED."

Baldwin Latham's "Sanitary Engineering" is an excellent book, which has not been superseded, but you had better supplement your reading of the chapters dealing with the subject of house drainage and w.c.'s with "The Plumber and Sanitary Houses," by S. Stevens Hellyer (1893); and also with Mr. Saul's articles which have recently appeared in our own columns. The four volumes of Rivington's ought to be sufficient for Building Construction. We cannot offer any opinion as to the stiffness of the examination. Could you not obtain copies of the papers set at previous examinations, and judge for yourself?

At New Wortley a new Methodist chapel has been opened.

A STAINED-GLASS window has been placed in Corstorphine Church.

THE schools of Christ Church, Southport, have been rebuilt, and will accommodate 600 children.

SIR WILLIAM CUNLIFFE BROOKES has contributed £2000 towards the building fund of the new west front and Victoria porch of Manchester Cathedral.

AN inquiry has been held at Conway respecting an application by the Town Council for permission to borrow £1500 for new municipal buildings, and £310 for gasworks purposes.

AN inspector of the Local Government Board has held an inquiry at Manchester into the application of the Corporation for a provisional order to empower them to put in force the Lands Clauses Acts, for the purpose of making a new street from the junction of Long Millgate and Ashley Lane to Charter Street, and for the widening and improvement of Hanging Ditch. In the second place, the sanction of the Board was desired for the borrowing of a sum of £16,000 for purposes of electric lighting; and, by a third application, sanction was sought to borrow £10,000 for the provision of sanitary conveniences.

Trade and Craft.

THE TUBULAR BATH BOILER CO. LIMITED.

Nowadays hot-water apparatus forms quite an important subject of consideration in house building. At one time the liability of boiler explosions was ever present, but the Patent Tubular Bath Boiler, made by the Tubular Bath Boiler Co. Limited, of 184, Gray's Inn Road, is described as being perfectly safe, whilst it is also said to economise fuel to the extent of 50 per cent. Instead of being placed at the back of the kitchen fire, the Patent Tubular Boiler really takes the place of the fire-tile next to the oven or ovens, but does not take away the heat, as the flames pass over and between the tubes on to the oven and hot plate. The water circulates through the tubular boiler, passing in from the hot water tank and back again through the boiler. All sediment drops into a channel at the end of the boiler. An important feature of the invention is that its construction abolishes the nuisance of having to frequently clean it out, as is necessary with the old high pressure kind. From the position of the tubular boiler in the kitchen, hot water is obtained soon after the fire has been lit, for the water begins to circulate immediately. It should be noted that it does not boil in the pipes, thus obviating the dangers of incrustation. The Patent Tubular Bath Boiler can be fitted to any size kitchen.

KEY'S METHOD OF VENTILATION.

Recently the Edinburgh Architectural Association, together with the members of the Leith School Board, paid a visit of inspection to the new buildings of the Leith Academy, which is fitted up for technical instruction and to accommodate 2000 pupils. The method of ventilation and warming received special attention, this being the first installation in the vicinity. During the visit 3,700,000 cubic feet of air was being propelled through the building every hour; the winter volume being 3,300,000 cubic feet per hour, while in summer 4,300,000 cubic feet of air per hour will pass through the class-rooms without draughts. The appliances consist of air filtering screen, kept moist by water trickling over it, with the provision of outer coils of tubes, steam heated, to prevent same from freezing in the winter. The air is drawn through the screen, then through a large chamber filled with steam heated tubes. The propeller draws the air towards it, and afterwards propels it into the main air ducts, from which it is led in vertical flues to each room separately, there being a separate coil for auxiliary air passing at base of every flue, so that any room can be warmed to a different temperature than the others. The boiler house contains a large Lancashire steam boiler, and steam heated copper heater for warming water for floor washing and lavatories. In the "steam engine" room a high-class steam engine is provided for driving the air propeller in winter while the steam warming is required, and also the automatic steam boiler feed pump which returns all water of condensation back to the boiler automatically, thus saving the water and requiring very little to be added to boiler to make up for loss. The gas engine room has a high-class steam engine, connected to "Key's" silent exhaust boxes, whereby no noise from explosive discharge is heard either in the engine room or outside of the building. The party, having inspected all the rooms, met in the lecture theatre, and called on the inventor of the method of improved Plenum ventilation to describe it. Mr. W. Key, who is the designer of all the appliances and the methods of ventilation and warming, as well as the contractor for this work in the building, gave a description of the methods of ventilation in the past with statistics of the results therefrom, afterwards showing by diagrams on the blackboard results of his improved methods, whereby the impurities of micro-organisms present in the air of schools is reduced from an arbitrary figure of 85, for the old artificial

methods, and mechanical ventilation by extraction of 95, to the figure of 5 by his improved Plenum method. Mr. George Craig, Leith, is architect for the Academy. The Gothen School at Glasgow is another new building wherein Key's method of ventilation has been adopted. It is the first school in the county fitted with the latest improvements in the application of scientific methods of ventilation and warming. Although the air was being changed nine times per hour in all the class rooms, the temperature, during the temporary absence of the attendants, had reached to 65deg. Fahr., and, being too warm, requests were sent from those present at the opening ceremony to the engineer to reduce it, and in a very short time the temperature was lowered to 57deg. Fahr. The school is erected to contain 850 pupils. The volume of air passing through the rooms during the opening ceremony was 1,700,000 cubic feet of air per hour, 2,100,000 being the volume for summer warm weather, and in winter, when the heating apparatus is in use, 1,500,000 cubic feet of warmed and washed air will be propelled into it every hour. The plans of the building were prepared by Mr. Henry Higgins, Jun., architect, Glasgow.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

AUDENSHAW.—For laying an intercepting sewer from Station-road to a point between Ashton Hill-lane and the Canal, for the District Council. Mr. J. H. Burton, surveyor, 2, Guide-lane, Hooley Hill:—
J. Smith ... £880 15 0 | T. Cooper ... £594 0 0
R. Dingley ... 830 0 0 | W. Hurst, Droydsden* ... 592 6 3
J. Chalmers ... 694 0 0 | J. T. Rowlands ... 590 0 0
J. J. Blackburn ... 691 0 0 | Matthews and Co. ... 580 10 0
Underwood Bros. ... 657 0 0 | R. C. Fish ... 572 10 0
Sharples & Moore ... 655 15 0 | E. Cheetham ... 572 0 0
W. J. Wilkinson ... 630 10 0 | W. J. Froom ... 566 0 0
Worthington and ... 627 5 0 | J. Farrell ... 550 19 6
Powall ... 615 10 0 | * Accepted.
H. Davison (Surveyor's estimate, £698 9s. 6d.)

ASHFORD.—Middlesex.—For erecting house for Mr. Chas. Sale. Mr. H. W. Smith, architect, 19, Tremlett-grove, Junction-road:—
Collinson ... £895 | Robinson and Francis ... £745
Brown ... 847 | Trust ... 730
Speechey and Smith ... 769

BALLYNAFEIGH (Ireland).—Accepted for the erection of Methodist church, for trustees of same. Messrs. Forman and Aston, architects and civil engineers, Queen's Buildings, Royal-avenue, Belfast:—
Young and Dickson, Pakenham-street, Belfast £2,663

BANGOR (Wales).—For the erection of Friars School, for the Governors. Messrs. Douglas and Minshall, architects, 6, Abbey-square, Chester:—
E. Williams ... £11,435 11 0 | R. J. Williams ... £10,065 15 11
Jones & Williams ... 10,718 15 0 | E. Jones ... 10,038 19 0
W. Jones ... 10,547 0 0 | G. Woods & Son ... 9,800 0 0
W. Parry ... 10,394 0 0 | J. Mayers ... 9,500 0 0
T. Browne ... 10,160 8 6 | J. Hamilton & Son ... 8,803 0 0
S. Parry & Sons ... 10,154 0 0 | Altrincham* ... 8,803 0 0
* Accepted with modifications.

BEXHILL.—For erecting a new scholastic residence, Bexhill-on-Sea, for the Rev. F. Burrows, Ancaster House, St. Leonard's-on-Sea. Messrs. Jeffrey and Skiller, architects, Hastings:—
M. Martin ... £4,650 | Padgham and Hutchinson ... £4,280
Eldridge and Crutten-den ... 4,436 | J. Simmons and Co. ... 4,232
J. Lester ... 4,397 | A. H. White, St. Leonard's* ... 4,186
H. E. Crutten-den ... 4,368 | * Amended and accepted.
P. Jenkins ... 4,300

BOSTON (Lincolnshire).—For the erection of offices, wine, spirit, and beer stores, stables, shed, cottages, &c., for Messrs. Souby, Sons, and Winch. Mr. Jas. Rowell, architect, Boston, Lincolnshire:—
S. Sherwin ... £2,487 | Chas. Jessop ... £2,040
Wadley and Co. ... 2,486 | John Lucas, Boston* ... 1,970
H. W. Parker ... 2,193 | * Accepted.
[Architect's estimate, £2,400.]

BOURNEMOUTH.—For the erection of a new residence, for the Misses Swaisland, at Southbourne-on-Sea. Mr. G. A. Bligh Livesay, architect. Quantities by Messrs. Jennings and Goater:—
W. Hoare ... £2,336 | Jenkins and Sons ... £2,210
George and Harding ... 2,320 | Jones and Sons ... 2,198
F. Hoare and Sons ... 2,297 | McWilliam and Son* ... 2,178
* Accepted, subject to modifications.

BROADSTAIRS (Kent).—For the execution of sewerage works, for the Urban District Council. Messrs. Law and Son, engineers, 17, Victoria-street, Westminster, S.W.:—
Pedretti & Co. ... £23,711 13 7 | B. Cooke & Co. ... £18,324 0 0
W. H. Saunders ... 19,244 0 0 | A. Kellett ... 16,600 0 0
and Co. ... 16,573 0 0 | G. Bell ... 16,573 0 0

BUCKNALL.—For pumping station buildings, &c., for Stoke Rural District Council. Lamer Souden, F.R.I.B.A. (surveyor to the Council), Miles Bank-chambers, Hanley, architect. Quantities by the architect:—
Jesse Cope ... £2,009 18 10 | Moss and Son ... £1,527 0 0
Walley & Woolis-croft ... 1,800 0 0 | Sampson Salt ... 1,406 10 0
G. A. Foster ... 1,744 0 0 | T. Godwin ... 1,413 19 6
T. Goodwin ... 1,560 0 0 | James Moss ... 1,366 0 0
C. Cornes ... 1,550 0 0 | J. Bagnall* ... 1,275 14 2
* Accepted.

CHURCH ASTON (Salop).—For the execution of water supply works, for the Newport Rural District Council. Mr. W. Wyatt, engineer, Bryndwr, All Saints, Shrewsbury:—
For Pipes.
D. Parsons and Sons, Pensnett, Dudley* ... 4in. ... £4 18 9
... 3in. ... 5 0 0
... 2in. ... 5 2 9
For Laying.
A. & W. Massey, Newport, Salop* ... 4in. ... £0 1 4
... 3in. ... 0 1 2
... 2in. ... 0 1 1
* Accepted.

CORBRIDGE-ON-TYNE.—For additions, &c., to Sandhoe House, for Colonel Hornby. Messrs. Potts and Son, architects, 57, John-street, Sunderland. Quantities by the architects:—
Middlemiss Bros. ... £1,938 6 0 | W. Smith ... £1,331 7 1
Kirk and Brown ... 1,750 0 0 | E. Snowball ... 1,228 0 0
R. Hudson and Sons ... 1,625 0 0 | J. Civil ... 1,225 19 6
J. B. Stott ... 1,610 14 0 | Ehas Dasington, Hisham* ... 1,223 0 0
G. H. Robson ... 1,501 11 10 | * Accepted.

CROYDON.—For pulling down and rebuilding Nos. 20, 21, 22, 23, Surrey-street, Croydon, for Mr. J. Mann Taylor. Mr. J. William Stevens, architect, 21, New Bridge-street, City, E.C. Quantities supplied:—
White and Co. ... £4,830 0 0 | A. Bullock ... £3,974 0 0
Lorden and Son ... 4,444 0 0 | Saunders ... 3,909 6 0
Potter ... 4,377 2 11 | Bryan and Son ... 3,895 0 0
Whitehead & Co. ... 4,325 0 0 | E. P. Bulled and Co. ... 3,879 0 0
W. Smith & Son ... 3,990 0 0 | Co. ... 3,700 0 0
D. W. Barker ... 3,989 0 0 | S. Page ... 3,700 0 0
S. Hart ... 3,987 0 0

DARTFORD.—For workhouse extensions, West Hill, for the Union Guardians. Mr. G. H. Tait, C.E., Lowfield-street, Dartford. Quantities by Mr. A. R. Brede, Gray's-in-road:—
Gunning ... £21,200 | Knight, Sidcup* ... £18,243
Thomas and Edge ... 18,243 | * Accepted.

DEVONPORT.—For alterations to 12, William-street, for Mr. A. Waterfield. Mr. Edgar M. Leest, architect, 109, Fore-street, Devonport:—
A. N. Coles ... £215 0 | R. C. Parkhouse ... £178 0
T. Jenkin and Son ... 178 10 | W. E. Blake, Plymouth* ... 153 0
G. Turpin ... 180 0 | mouth* ... 153 0
* Provisionally accepted.

EDMONTON.—For new offices and board-room, for the Edmonton Board of Guardians. Mr. T. E. Knightley, architect:—
C. Wall ... £6,317 | Fairhead and Sons ... £5,985
Knight and Son ... 6,275 | Thomas and Edge ... 5,904
W. Lawrence ... 6,235 | P. Hart ... 5,912

GRAVESEND.—For additions and alterations on the "Clarendon Royal Hotel," for Mr. R. L. Cosh. Mr. D. Carmichael, architect, London. Quantities supplied:—
Milton and Wallis ... £1,135 | H. W. Martin, Gravesend* ... £1,023
Tuflee ... 1,690 | end (accepted) ... 1,023
* Accepted.

S. Ransom and Co., Kensal-road, London* ... £271 10
* Accepted.

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EXMOUTH.—For the erection of detached villa on the Halsdon Estate, Exmouth. Messrs. Kerby and Ellis, architects, Exmouth and Salferton:—
A. Hayman £1,314 18 | H. Dart, Exmouth* £1,250 0
* Accepted.

FROME.—For taking down railway tavern and cottages, and erecting an hotel and offices, Wallbridge, for the Lamb Brewery, Limited. Mr. W. G. Brown, architect, Park-road, Frome. Quantities not supplied:—
Charles Barnes £1,655 | John Hibberd, Frome* £1,031
* Accepted.

GRAYS, Essex.—For the erection of four houses at South Oxenden, for Mr. Webster. Mr. Christopher M. Shiner, architect, 2, Walbrook, E.C.:—
H. B. Rons £1,421 | J. Lawrence £985
G. B. Rons 1,400 | Davey 984
J. Brown 1,040

HEXHAM.—For the execution of public and private street works, for the Urban District Council. Mr. R. T. Surtees, surveyor, Priestsopple, Hexham:—
Geo. E. Simpson £1,292 | M. D. Young, Elm:—
Jacob Robson 1,571 | grove, Hexham* £1,022
* Accepted.
[Surveyor's estimate, £1,358.]

ILFORD.—For the erection of two villas, Oakfield-road, Ilford. Mr. Fredk. G. Faunch, architect:—
Welsh and Son £1,340 0 | Snewin Bros. & Co. £1,080 0
C. North 1,239 0 | Lewin 879 10
Willmott 1,124 0

ILFORD.—For the erection of laundry buildings, exclusive of boilerhouse, shaft, and fittings, for the South Essex Sanitary Steam Laundry, Limited. Mr. Horace J. Cropper, architect, Ilford:—
Snewin Bros. and Co. £2,367 | A. Miles £1,770
J. Sparks and Son ... 2,327 | W. Collins 1,080
W. Johnson* 2,032
* Accepted.

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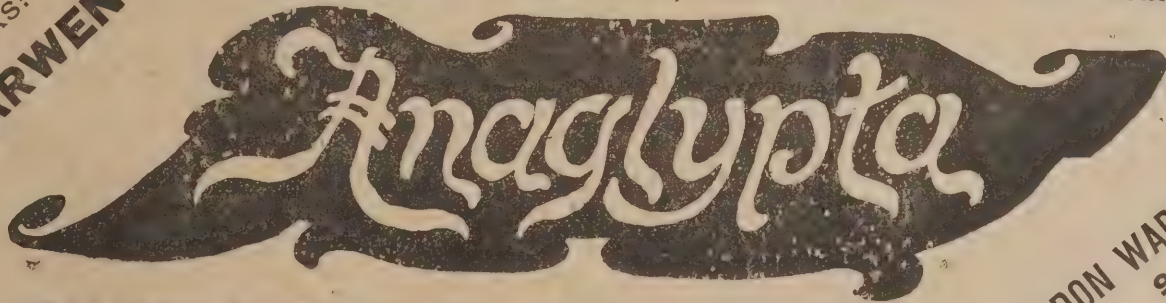
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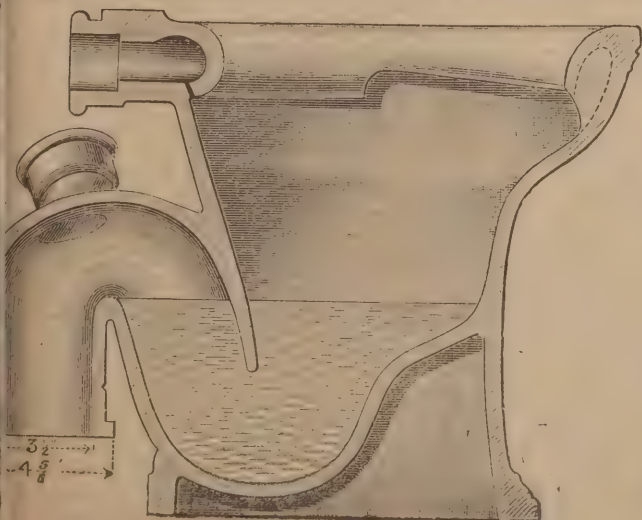
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INGATESTONE (Essex).—For shop fronts and repairs to premises. Mr. K. Mawhood, architect, Chelmsford:—
W. Finchen ... £558 | Smith & Son, Witham* £512
H. Potter ... 515 | * Accepted.

LONDON.—For the erection of seven houses and two shops, Woolwich, for Mr. J. Hobson. Messrs. Church, Quick, and Whincop, architects:—
Proctor ... £3,650 | Sanford ... £3,600
Kitley ... 3,630 | Thomas and Edge ... 3,587
Ware ... 3,617

LONDON.—For rebuilding "Earl of Chatham" public house, at Thomas-street, Woolwich, for Mr. G. Coshfield. Messrs. Church, Quick, and Whincop, architects and surveyors:—
H. L. Holloway ... £2,820 | Chapman ... £2,689
E. Proctor ... 2,750 | J. B. Sanford ... 2,659
Thomas and Edge ... 2,691

LONDON.—For pulling down and rebuilding two shops, 6 and 7, Beresford-square, Woolwich. Messrs. Church, Quick, and Whincop, architects:—
Goad ... £1,898 | Kitley ... £1,485
Proctor ... 1,683 | Chapman ... 1,479
Thomas and Edge ... 1,500 | Sanford ... 1,430

LONDON.—For erecting a pair of semi-detached houses, Alexandra-road, Muswell-hill, N., first of series, for Mr. E. W. Richardson. Mr. T. M. Garrod, architect, 172, Fenchurch-street, E.C.:—
Oliver ... £1,660 | Jeffries ... £1,491
Bronsdon ... 1,654 | H. L. Clark* ... 1,490
* Accepted.

LONDON.—For pulling down and rebuilding Nos. 40 and 41, Foley-street, W., for Mr. Thomas J. Boulting. Messrs. Clark and Hutchinson, and Percy A. Boulting, joint architects, 25, John-street, Bedford Row, W.C. Quantities supplied.
Holloway Bros. ... £3,175 | Smith and Co. ... £2,987
Burman and Sons ... 3,121 | Antill and Co. ... 2,970
Patman and Fotheringham ... 3,000 | Anley (accepted) ... 2,920

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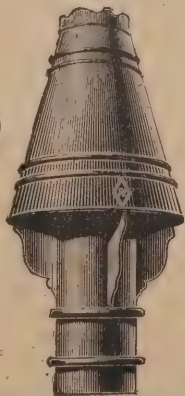
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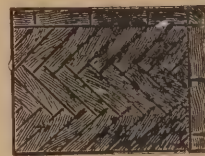
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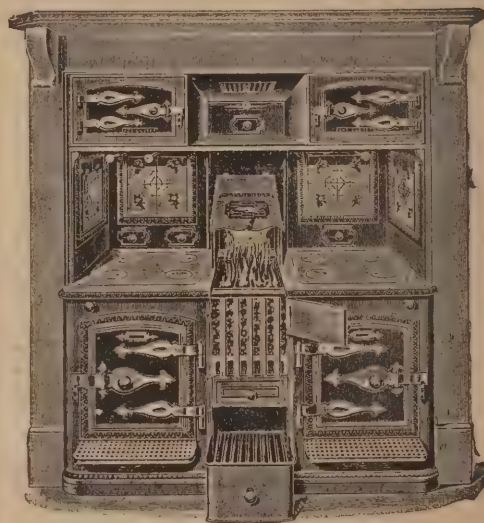


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Case for the Despotic Grocermen.

"JUSTICE," as personified by a late correspondent to the BUILDERS' JOURNAL, has cried aloud against the common usages and conduct of Public Competitions. One has heard that voice before, crying in the wilderness of an universal apathy; but, in general, the lamentations of architects in competition smack of childishness; and, though the milk of one's human kindness is ready to flow forth in

The conduct of a public (or limited) competition is clearly a matter of contract, and it is the business of the parties to see that their interests are fully represented and properly protected in the terminology. It is the business of each who enters into agreement to secure the most advantages upon the most issues, and there is no rule of law or morality which puts any obligation upon a man to pay more for a thing than the vendor asks, or to refrain from exacting the full forfeit from one who has entered with open eyes upon a tussle for the best of a bargain. If a man is incompetent to guard his own interests in the world-wide game of grab, in which he has voluntarily elected to take hand, speedy disaster is his right and just reward; and none dare say that those who gain by his loss carry any infamous imputation. If there shall have been infringement of right, redress does not lie in crying aloud upon humanity to witness, and combine morally to denounce the wrong, but in an action at the High Court of Judicature. There can be no moral obligations in a transaction wherein none are admitted, and, as bearing on affairs, it is well to remember that whenever a position is

of any explicit promises to falsify. The conditions are so hedged with saving clauses that in many cases the committee are really bound in nothing but the mere payment of premiums, and in some cases even this is subject to the designs being approved. There are actually hardly any cases at all—not one per cent. probably—of conditions of competition stating or implying that the award of the assessor is to be absolute. The assessor is employed to "advise" or "assist." When the assessor's award is promised to be held decisive, the undertaking is usually conditional upon the work being executed, or upon any design accepted at all. Again, the number of competitions in which the conditions contain a promise that the winner of the first award shall be commissioned to carry out the work is probably under five per cent. A clause exempting the committee from "accepting the first award," or even "accepting the first or any award," is the most consistent and unvarying clause found in conditions of competition. Now, whenever an assessor's award is set aside, and whenever the winner of the first award is supplanted, as architect of the work, by



Old Cottages
Sandford Devon.

CREDITON AND ITS DISTRICT.

commiseration of the ingenuous competing soul, tricked and defrauded by conspiracy of Town Council, yet the utter fatuity of architects engaged in these enterprises not unusually provokes one to no more than a wry mouth. The framing and enactment of competitions is purely a business transaction. Upon no other ground is their existence intelligible. There can be no thought of any charitable or philanthropic motive anywhere; and a scheme for mutual benefit cannot exist as such, when each party would be at the other's throat. The "Conditions of Competition" as now drawn up may be very fairly described as a sham legal instrument; it is a sham form of contract, wherein the obligations of the competitors are clearly and exactly defined, and the obligations of the promoters set in such loose and ambiguous terms as renders them open to any interpretation that subsequent events may show to be most profitable to the promoters.

accorded to moral obligations, the way of the world at once secures an immoral usage stretching from horizon to horizon. Young architects who cannot find opportunities to satisfy their ambition, in the slow rising of real worth swarm to compete, and invite failure and disaster on the distant chance of bettering their fortunes. They solicit calamity on the chance of a pittance, and their protests and complaints when they duly find themselves a-sprawl are hardly worthy of very serious attention. There is certainly some cause for these wide-flung appeals when, as occasionally happens, an assessing committee goes back on its explicit promise; although the competitors should have properly assured their position, so that such backsliding had been impossible. The truth is, however, that it is very rarely that a committee does actually falsify an explicit promise. This is not for any qualms of conscience or sentiment, but for sheer lack

some outsider, there are protests loud and long. And yet the conditions expressly state and imply that such usage is to be expected! The whole matter, however grotesque, is truly quite deplorable; but whether the assessing committee break their precise and implied undertakings, or merely avail themselves of the subtle ambiguities and saving clauses of their Conditions, the ever recurrent protests and denunciations of competing architects must seem utterly senseless and puerile to all business men, and to all ordinary sensible people who are not biased with the peculiar artificial and sentimental point of view with which the Profession regards competitions alone of all other business transactions. For oneself, one hopes to live to see the great historic stand of British Architects against the tyranny of British Grocermen an accomplished fact.

B. C.

THE WESTMINSTER IMPROVEMENT SCHEME.

By ERNEST RADFORD.

(Continued from page 156.)

EITHER criticism or the apprehension of criticism has effected modifications in the schemer's original plan. Mr. Norman Shaw has written to say that the neighbourhood of Smith Square, including Great College Street Barton and Cowley Street, is not threatened, and, further, that the width of the continuation will be 130ft. instead of being narrowed to 40ft., as it appeared it would be. It would have been absurd to describe a road diminished to this extent as extended, for it would not in fact have been the same road at all; and as it was certain that this niggardly plan for a "miserable road" would have been stoutly opposed if submitted, the petitioners have announced their intention of providing a better. So far so good, we may say; but a plan cannot be altered in part without the whole being affected, and it remains to be seen what further amendments will be required. If an Avenue 90ft. wide is to replace Abingdon Street and Millbank Street, and if in deference to public opinion the petitioners decide to extend the Embankment in the manner above described, there will then be two carriage ways within a few yards of each other, and tending to meet at the end of the Horseferry Road, which is absurd, as Euclid would say, and is made even more so by the fact that the plan would involve a cross-road connecting the two. [Not even a coach and four can drive through the Houses of Parliament, and, clearly, to regain the Embankment after deflecting at Westminster Bridge the driver would have to turn to the left out of Abingdon Street.] If three such roads should be made where really not one is required, then the eligible building site would be greatly reduced, and the possibilities of profit to the Company would be diminished accordingly. Not only the land but the speculative builder would be "cut up" most awfully, and it is thought that Mr. Warren's proposal, being better by far than the other, is more likely to be accepted. Now with regard to the Avenue (Street No. 1 in the plan) which will replace Abingdon and Millbank Streets. The latter, Mr. Warren admits, is "narrow, winding, and inconvenient, so indefensible, in fact, as a thoroughfare that the County Council has already a plan for widening it." But, bad as it is, "it has one merit at least, that of approximately right

direction." The concluding words of this sentence should not escape the writer, for they are, indeed, suggestive of thought. If the Thames had been confined by Nature within exactly parallel lines then London might all have been T-squared and planned like a brand new American city; but, fortunately, it is not so, and abstract ideas of uninterrupted vistas can seldom be realised here. There may be some truth in the saying that the line of beauty is curved, but for myself I incline to say that it is better described as "Love's Enclosure," and that it may be reallinear, curvilinear, or altogether irregular. There is beauty in Hobsen's Avenue, and beauty down here by the river where we follow a winding road. "If this new street is produced southward, and kept perfectly straight, it terminates against the steps of the Tate Gallery, after showing in the most ungainly fashion the backs of the modern houses in Grosvenor Road." From beginning to end it will be little more than a back lane, wider than need be, and yet altogether too narrow to have the dignity implied by its name. "It is shown as a boulevard planted with trees, and has been eulogised by some unthinking but friendly critics as a splendid avenue." The apparent width of a street is obviously related to the height of the buildings through which it passes, and it cannot be supposed that a speculating company would, in the matter of height, stop short of the extreme limit allowed by the London Building Act. Its trees are not likely to flourish. It will carefully avoid all river view, for that is to be reserved for the happy dwellers in the big blocks which faces the delightful prospect of Lambeth." Mr. Warren continues: "At the northern end of this particular avenue it will be seen that it is the intention of the syndicate to acquire and remove the terrace of quiet Georgian houses known as Abingdon Street," and the "removal will include, apparently, the fine old house now occupied by the Board of Trade, whose admirable stone front faces Old Palace Yard. A site will thus be obtained which for nearly its whole length will have the fine view eastward of the river across the Tower gardens, and westward the really delightful prospect of the Abbey gardens, the Abbey itself, and Westminster School." To whom, then, shall the site be surrendered? If to the people of London, a handsome and dignified block of public offices will replace it, and will be worthy in every respect of its position. If to the speculative builder, "a ten-storied pile of flats in red brick, or a giant hotel." The temptation is great to quote much from this article, as the writer

has left us but little to say, and it would be difficult for anyone sharing his views to present the matter more forcibly. "What the syndicate offers is at best but a sorry bargain. We are to grant to a private body of commercial speculators, for its own behoof and benefit, powers to smash, obliterate, and wreck, on a gigantic scale, an ancient and interesting quarter of the historic city of Westminster; power to convert to its own commercial ends sites of national value (which we may one day have to redeem at immense cost); and last, but not least, powers to create another great proprietary estate—an oligarchy of ground landlords." The counter-proposal is moderate in the extreme if compared with that of the wrecker, for we would save nearly all that is threatened. The road that Nature has made by the River, let it be beautified from end to end, and let its houses command the view so often as it may be possible. When opportunities of purchase occur let London assert her rights. It appears that Mr. Warren's modest indication of a possible scheme, in so far as it refers to the new-found-land to the south of the Tower Gardens, requires hardly any modification. The "Avenue" scheme will be squashed, but what of the promised Embankment extension? Let us imagine ourselves more opulent than we actually are, and possessed of a carriage and pair. Let us enter the same from the Temple, perhaps after service on Sunday, with the spell of slow music upon us. It were needless to describe the drive, as the route is all too familiar. But suppose the sun to be shining for once, and Westminster looming above us. Will it detract from our pleasure to find that the road deflects at the Bridge, sweeping proudly around the great buildings, and embracing all as it goes? We are now where the reader should be—in the Old Palace Yard, to wit; and, instead of disporting ourselves as we would, are spoiling the Day of Rest by halting, not to enjoy, but merely to talk more excitedly than is our wont about the terms of a Bill, which promises to spoil as much as meets the eye at this point. In the map which accompanies this the available plot is shadowed, and we would have it decided at once whether it shall be made public or not? The plan of the proposed new garden need not be discussed at present, but it is thought that if it were open, a flowered walk by the riverside would be enough for all popular purposes. The houses of Millbank Street would command it, looking over it on to the river; and it goes without saying that a street so distinguished would be very well cared for, and would in its way become beautiful. If the idea of treating the public to land which might be let to advantage is thought too extravagant, we can only suggest as an alternative that residential chambers, including club comforts and chapels, should be erected for the happily unmarried members of Parliament. The terrace at least would be common to them and their constituents, for this at least should be ours. The idea is delightful, but, like Mr. Tristram Warren's, is merely suggested. There will doubtless, he says, "be many and better ones. What is, however, imperative is that the plan should be laid on broad Imperial lines, and not dictated by the cramped necessities of a speculative venture."



PLAN SHOWING AREA AFFECTED BY THE WESTMINSTER IMPROVEMENT SCHEME.

A STABLE and workshops in Belvedere Road and Chicheley Street, Lambeth, are about to be rebuilt for Mr. B. T. Chamberlain, according to the designs of Mr. Robert Willey, 33, New Bridge Street.

THE Plymouth Town Council has adopted a report of the Works Committee for the reconstruction of the defective subsidiary sewers in district No. 3, in the southern part of the borough comprised within the boundaries of Jubilee Street, Higher Street, Treville Street, and Palace Street on the north, St. Andrew's Street and Hoe Street on the west, and the Hoe and Sutton Harbour on the south and east, and also for the repaving of certain streets within the same district, the estimated cost of the sewerage works being £13,693, and of the paving works £24,185.



CREDITON AND ITS DISTRICT.

By G. J. F. HOOKWAY AND A. L. COX.

(Continued from page 160.)

THE town can boast of very little outside the precincts of the church, but in the main street—viz., High Street—there is a fine specimen of a Georgian house, with a quaint bell turret of the same period. The old almshouses in Church Road are very picturesque, and are fine specimens of old Devonshire cottages. With their large chimneys set anglewise, and the roof covered with thatch, they present a pleasing appearance. A sketch of these is given. About half a mile from the church is the old town green, though there is little of the green at present growing. In the centre is the stump and base of old town cross. (See sketch.) A few years since bull baiting was prevalent, and one of the chief sports of the neighbourhood. The sports took place on the green, the bull being chained to the cross, the shaft of which was broken, eventually leaving it as we see it now. The green on gala days was a picturesque sight, old English sports being indulged in freely. It is now used chiefly by the small fry of the place. It has been proposed to replant the green as part of the Jubilee celebration.

Not far from the green is situated, in the midst of a garden, the desecrated chapel of St. Lawrence's Hospital. It was dedicated to St. Gregory, and is a rectangular structure. The internal measurements are 45ft. by 18ft., with finely proportioned angle buttresses. Triplet windows of equal height occupy the east and west gables, whilst on the north side are traces of a door. The windows are both blocked with masonry. The chapel is a good specimen of the Lancet period, and dates from 1206. It formed one of the eleven chapels that were in the neighbourhood belonging to the Collegiate Church, and of which portions only some three or four remain; some have been demolished within recent years. St. Lawrence's Chapel has now been turned into cottages, and many things added to give it a domestic appearance. Strange to say, that, with the exception of these chapels, nothing whatever is left of the collegiate buildings, which were considerable; but the

memory lingers in the name of Dean Street, and a modern house in the parish is called as the "Palace." This may mark the site of the bishop's residence.

There are two ancient wells in the parish, one being marked by a stately poplar tree, and called Winifred's Well. This is an error, the true name being Winfrith, or Boniface, who was born here, as has been stated in the early part of this article.

There is a field here known as "Lord's Meadow," where, in 1644, Charles I., with his son Prince Charles, reviewed the Royalist army under Prince Maurice; and in the same place, a year afterwards, Fairfax drew up his troops, Oliver Cromwell being present. To come down to our own times, George Edmund Street, the architect, lived here we believe on two occasions, and doubtless the frequent visits he paid the fine old church, then in a different state than now—coupled with journeys to her more beautiful sister and neighbour, Exeter Cathedral—did at least something to form his lofty mind and give cunning to his hand.

In the latter part of the eighteenth century the town was nearly destroyed by fire, and consequently, much ancient work must have perished, for there is little at present remaining apart from what has been mentioned. A workman, whilst doing some repairs to the church last year, found about 1848 coins in an old buckskin bag. The coins dated from Edward VI. to Charles I. After a lengthy controversy and an inquest, the coins were sold by auction, fetching about £90. The coin that realised the highest price was a half-crown of Charles I., in poor condition. The money realised by the sale was handed over to the Church Governors, the finder receiving £5 (!) as a reward.

The town was far famed for its wool spinning and manufactures of cloth in ancient times, but the trade has long since departed. The vale of the little river Creedy is extremely picturesque, and in summer, resplendent with the wild flowers of the season, many excellent views of the surrounding country may be obtained from the adjacent hills that overshadow the valley. There are several fine seats in the neighbourhood, that of Sir Redvers Buller and also Sir John Shelly's being the finest, the latter, known as Shoebrook Park, having a fine collection of paintings,

amongst them being works from the brush of Eastlake, Wilkie, Webster, Lee, &c.

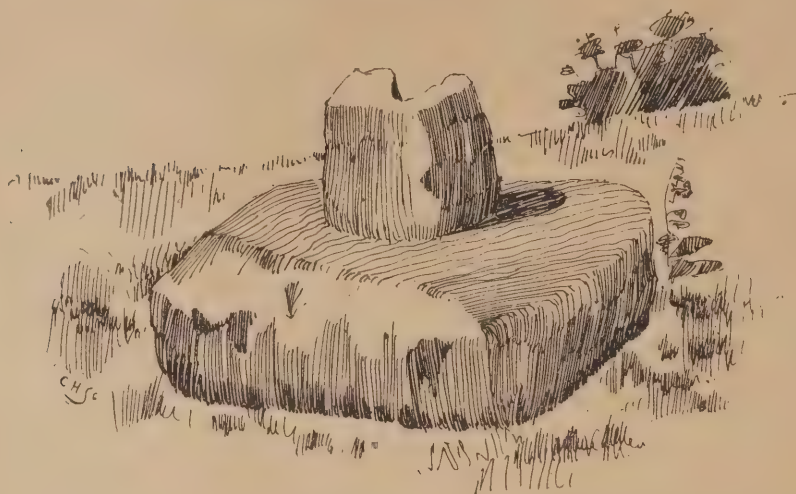
A recent gale destroyed no less than 1000 trees in these fine parks; in the short space of an hour stately elms that have defied the storms of centuries and smiled at the frown of Orion the herald of the hurricane and gale, lay one after another conquered and fallen.

From the Cridiantune of the Saxon to the Crediton of to-day is a long stride and countless have been the changes effected. The hand of time, the ravages of fire, the storm-cloud and man's handiwork all have had their share in the obliteration of old time structures. As we view from the top of the adjacent hills the busy little town below, we hark back to the days when Winfrith planned and built his little church, and gathered his Saxon flock around him listening to the truths which he had been taught and learnt in St. Peter's Monastery at Exeter, and then when Danish marauders inundated the country, pillaging the villages, bishops one after the other doing their noble work, till the time came for the ninth and last to put aside crozier and mitre. Open to attacks and undefended the far-seeing Leofric with the fact before him translated his see eight miles away, where at least the Mother Church could be screened from the enemy's attack behind the city walls. But after the loss of her bishop and the disappointment at the removal of the see, there arose on the little knoll rising beneath us the finest collegiate church in the county. The slow but sure process of decay eventually caused the fine old church to become a ruin, and the timely aid of the bishop came not too soon, for under the skilful laws of the fifteenth century builders we have the Crediton Church as we see it now.

We leave the town with lingering footsteps, feeling that we have learnt something from the hand of long departed craftsmen.

Having dealt with Crediton and its fine old church, we now turn to the district, which is full of interest to all lovers of Architecture and antiquity, and whether it be an incised stone, a village cross, or an ivy-clad tower, each has something to tell of the times, customs, and manners of those whose trowel or chisel wrought their forms. As we mount up the hilly Devonshire roads and wooded lanes, there can be seen many towers standing like sentinels against the sky, or rising above

Base of old Cross Creditor Green



clumps of stately elms that cast their shadows on the old-time structures, and, as it were, protecting them from the storm.

Wending our way in a south-westerly direction from Creditor, we enter the village of Newton St. Cyres, about $3\frac{1}{2}$ miles distant from Creditor. It is a typical Devonshire village, the little cottages being built entirely of cob and roofed with thatch, quaintly gabled, with huge chimney breast rising well above the eaves line, the red brick chimneys with tiny gablets behind, roofing over the breasts that come to the level of the roof plate, all lending that charm and beauty only to be found far from crowded cities. Throughout the entire place only some three or four slate roofs are to be found and one cannot but notice how cold and severe they look beside the warm and picturesque thatch covering of those near and around them. Ascending the steps leading to the churchyard, we come at once upon a structure that has escaped to some extent the hand of the "restorer." The building is a good example of Devonshire Early Perpendicular work and consists of chancel, nave with north aisle, and western tower—it is dedicated to St. Cyr or Cyres the infant martyr, killed with his mother Julitta A.D. 304. The north aisle contains a fine monument to the memory of James Northcote, which consists of a full length figure standing under a canopy and habited in the costume of the 17th century, his right hand holds a staff whilst his left rests on the hilt of his sword. On either side of the figure are medallions of his two wives Elizabeth and Luzanna, whilst underneath are the figures of his son and wife and their three children all kneeling and in the act of devotion. The tomb is richly coloured, but undated, it probably dates about 1650-80.

Of the other memorials in the church there are none of exceptional interest, and most relate to the members of the Quicke family, who have occupied Newton House since the days of Elizabeth. There is little else of interest in the church; the north aisle, added at a later date, is more richly treated externally; the buttresses are all niched, and the original figures are much worn by the hand of Time; the parapet is pinnacled and broken. The face of the wall is relieved at intervals between the buttresses by holes about 4 ins. square. The tower is of the usual character found in the district, and contains five bells, all cast in 1733. Most of the original Perpendicular tracery remains, and that of the east window of chancel and north aisle is varied in design, and a good example of Early Perpendicular work. The whole of the exterior, including the tower, with the exception of the north aisle, has been treated to successive coats of rough cast and whitewash. This has been done several generations ago, and, if removed, would reveal the rich brown colour of the local stone of which it is built, and the edifice would have more of that quiet

dignity that pervades these old buildings hidden in the glen, and far from the noise and tumult of a busy town.

In the reign of Queen Anne silver was worked to some extent in the neighbourhood, and other minerals with manganese which has yielded a rich lode for the last hundred years. The poet, Hugh Downman, was born here in 1740. Newton St. Cyres is one of the most interesting villages in the neighbourhood of Creditor.

A pleasant walk through path fields, Newton wood, and a hard climb over a lofty hill and common known as "Waddlesdown" (from whose summit five counties can be descried, one of them said to be in Wales), then a short distance down a rugged lane, commanding fine panoramic views, we come to the village of Whitestone, whose whitewashed church tower can be seen standing out clear among the trees. The tower for many years has been a Trinity House landmark for the mariners in the bight of Exmouth. The church is dedicated to St. Catherine, and stands on a hill 700ft. above sea-level, and is of Late Decorated and Perpendicular styles. It consists of nave, north aisle, and chancel, also south porch and transept with western tower. Across the western end of the nave is a gallery carried on turned columns, the front is emblazoned with various heraldic shields, with the date 1621 and initials B.T. (which in all probability are those of Burnell Townsend, who was a landowner in the parish) carved on one.

The piers are octagonal on plan, and are granite monoliths; the caps are simple, and are of local stone with a plain chamfer; the arches are segmental and are very plainly moulded. There are remains of some fine old stained glass, consisting of the Virgin and Child, with emblems, in the north aisle win-

dows, a fragment of a coat of arms in the east window, and in the south transept or chapel other emblems, &c. The present screen is a simple one of Jacobean date, the upper portion having turned balusters supporting a carved frieze, the lower part being panelled. It is situated in the last bay of the nave arcade, and divides it from the north aisle. This probably formed a chapel or chantry.

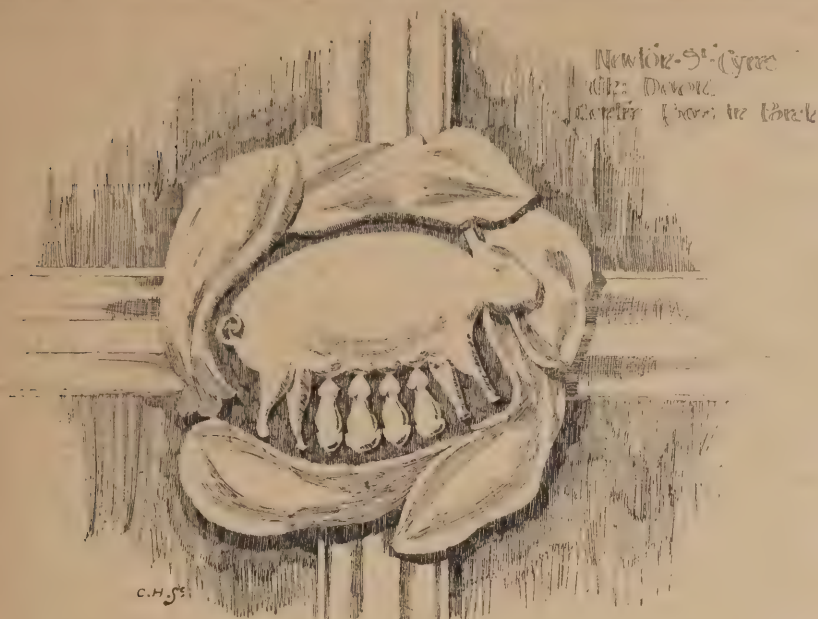
Of the old fifteenth-century screen that stood across the chancel nothing remains but the rich cresting, composed of eagles with outspread wings, and this was found some time since; it is now placed on the sill of the east window behind the altar. Similar cresting is to be found in Exeter Cathedral, and in all probability is from the arms of the Speke family, who held large estates in the parish. Without doubt there was, at the end of the north aisle, at one time a Speke chantry. A chantry of this name is at present in Exeter Cathedral, and there are other villages in the neighbourhood that bear traces of this family. The church at Bramford Speke, about five miles north from Exeter, contains coats of arms in the windows to this family; the small south transept of this church doubtless contained a chantry for the Spekes. Whitestone Church has been well restored through the munificent generosity of the present rector and his brother. The latter presented a fine organ, and also had the bells rehung. There are some ancient flagons and paters belonging to the church, one by the celebrated Ions, of Exeter, dating from about 1570; also a silver one presented to the church by Nicholas Hall, who was rector of the parish towards the end of the seventeenth century, and another pater of much later date presented by Minister Barnard, who was rector in 1756. There are a few interesting slabs in the church; one in the south transept dates 1680, and others dating from 1617 and 1671. The lettering on these slabs is very clear and deeply cut.

The tracery of the windows, with one or two modern exceptions, is the original Decorated and Early Perpendicular, and of very good design. As shown in the sketch of the exterior, the Decorated work is on the south side of the church; these windows are of two lights. The finials on the coping are very late, and work of the seventeenth century.

On the north side is a blocked door, probably the north entrance to the nave. The whole of the exterior bears the whitewash of many generations, and it has been conjectured that the white appearance of the church has given the name Whitestone to the parish.

In the churchyard is the remains of the old village cross, and there are several ancient vaults and tombstones. On the south side is an altar tomb to the memory of the Sowdon family, the inscription being almost illegible, and dates from about 1675. The church forms a picturesque feature in the landscape, standing as it does with the trees for a background, and, according to the ordnance survey, the top of the tower is 700ft. above the sea level. It is a stiff climb to this little church, but it well repays a visit. The rectory adjoining has remains of a Perpendicular door and window. Near to the church are stables built for the





purpose of parishioners to bait their horses, who have to travel far to get there, the parish being scattered, and the church very isolated. This is interesting in the fact that few are now to be seen, and we only know of one other instance in the county, and that at Rockbeare, an isolated spot some six and a half miles east of Exeter. The village contains many fine old cottages, a sketch of one is given. These cottages are covered with thatch, and are very picturesque.

About half a mile from the church a stiff climb brings us to an elevated spot called Waddlesdown, before mentioned. This word means high or high land. It is derived from the gaelic *Wad* hill, *Al* high, *Dow* land, and well deserves its title, as it has before been stated that an extensive view of five counties can be seen. It only remains to add, from this splendid situation can be seen countless villages, while church towers are to be seen on all sides, and a fine view of the city of Exeter, with its grand old cathedral and many towers and spires. To the east may be seen the shores of Exmouth and the coast line of Dorset, with a glimpse of the Channel; on the south the hills and tors of Dartmoor stand out plain, and make a ragged line against the sky; to the west, on a clear day, may be seen the Welsh coast and the Bristol Channel, and further north-west the Somersetshire hills are seen in the distance, including the famous hills of Exmoor, noted for their connection with the Doone family. The view from this hill is almost unparalleled in the country.

About four miles west of Crediton lies the village of Colebrooke. Long before it is reached the church tower can be seen rising well above the knoll on which it stands. Colebrooke is a small village, and its only building of interest is the ancient church, as in all small villages there is little else beyond the church. Colebrooke Church is very interesting. It consists of nave, north aisle, south transept, and chancel, with south porch and lofty western tower. At the end of the north aisle is a parclose screen of unusual character and Jacobean in style, showing much foreign influence in the design; the tracery is filled in with minute fretwork, the mullions are composed of turned and twisted balusters, the lower part panelled with linen panelling; the portion on the south side facing the chancel has quaint cresting in the form of six pinnacles, each 1ft. 2in. high, formed of 4in. by 3in. pieces, and finished on the top with clustered foliage. The priest's seat and desk is an elaborate example of fifteenth century carving, the ends being carved their full length with kneeling figures (savages) bearing coats of arms: the figure on the end of the priest's desk is entirely covered with scales. The north aisle dates from about 1450, and was doubtless the work of John Copplestone. The south transept contains two arched recesses with canopies and a piscina; there is also a hageoscope, so that

the altar may be seen from this portion of the building. This transept was in all probability a chapel. There is in the floor of the church a grave-stone to the memory of John Copplestone, Esq., 1455, and also his wife, who died two years later in 1457; others in the church date respectively 1666 and 1659. The tower contains six bells, the earliest dating 1627 and 1659, whilst the remaining bells date from 1751-1787, and 1887. From the summit of the tower extensive views may be obtained. The building has recently undergone restoration.

(To be continued.)



RIGHTS OF LIGHT.*

By A. A. HUDSON.

I PROPOSE to deal with the subject, as far as possible, from a layman's point of view, and to avoid legal terms. The question to be faced is whether anything can be done to remedy the existing state of the law, and obviate the great difficulties which are placed in the way of, or I might say added to, building operations, by the tactics of persons claiming rights of light. Those tactics are well known, and, therefore, it would serve no purpose to enlarge on them. Of course, there are two sides to every question, and the person whose light is to be affected has a right to protection. Now, in order to consider the possibility and advisability of legislation, it is as well to consider analogous legislation

IN THE CASE OF PARTY WALLS.

because otherwise it will be said "You are taking away private light" in an unprecedented way, but ample precedent will be found in the London Building Act for future legislation as to right of light. Before the London Building Act, and previous Acts dealing with party walls, there was constant legislation. The owner of the property upon which buildings were proposed to be erected, or rather reconstructed, often did not know whether the dividing wall was a party wall; and even if he knew that, he did not know what kind of party wall it was. A party wall may mean, first, a wall of which the two adjoining owners are tenants in common; secondly, the term may be used to signify a wall divided longitudinally into two strips,

* A paper entitled "The position of owners of property with regard to rights of light and other easements, with a suggestion for future legislation," read before the Society of Architects.

one belonging to each of the neighbouring owners; and, thirdly, the term may designate a wall divided longitudinally into two moieties, each moiety being subject to a

CROSS EASEMENT

in favour of the owner of the other moiety. In case of a longitudinal division between two neighbours, each of them could pare away one moiety; and if this was done, the moiety of the other owner might be of little use to him. Many other peculiarities and difficulties arose—more useful to the lawyer than to anyone else. All this doubt has been disposed of by the London Building Act, which constitutes every division wall a party structure with certain definite rights, and in case of any dispute the parties can refer to the arbitration of a technical tribunal. The objection raised to legislation in matters of this kind always is that private rights should not be taken away by Act of Parliament, unless there is a very strong case for so doing. Undoubtedly the London Building Act does take away private rights, but so do many other Acts. The Lands Clauses Acts compel a person to sell his property or his rights in it, and legislation of this kind is permitted because in the public interest it would have been disastrous to prevent great public enterprises being carried out, either at all or at such great expense by paying out blackmailers, as to render the enterprise a failure. In the case of party walls the rights as between private owners has been legislated for, and this offers a stronger case of comparison than the cases of great public enterprises, like railways, canals, and so on, where legislation has been, so to speak, between private owners and the general public. It must be remembered also that in the case of party walls, under the London Building Act, nothing in the Act authorises any interference with an easement of light or other easements, and this would include a right to support. But the powers conferred by the Act of dealing with party walls in all kinds of ways are so wide, that this reservation interferes but slightly with the useful operation of the Act. The person building must so deal with the party wall so that the adjoining owner's easements are not interfered with, but directly either a building or adjoining owner proceeds in any way to use the powers of the Act he brings himself under its powers and loses the rights which he had at common law. The question is in what way

BUILDING IN LONDON COULD BE SIMPLIFIED

as regards rights of light, by some such legislation as the London Building Act in relation to party walls and other matters. I think the first principle to be adopted is that disputes should be settled by a technical tribunal, and I think that the tribunal should be presided over or be assisted by a lawyer. The reason I suggest that a lawyer should be added is because the rights of neighbouring owners are much more complicated than in the case of party walls. The reason for a technical tribunal is obvious—instead of the disputants having to prepare elaborate models and to call in conflicting evidence of the facts, the parties would come before a tribunal composed of persons who understood plans, and who could and should view

THE SITE AND SURROUNDING BUILDINGS.

In the next place, the persons proposing to build should serve notice on the adjoining owners, and the meaning of the term "adjoining owners" would have to be defined so as to include occupants, trustees, reversioners, tenants, and all persons who might claim right of light. The notice, I think, should specify exactly what kind of building is proposed to be erected, and that the plans, sections, and elevations can be seen at the offices of the tribunal to be created to dispose of such cases. The parties on whom such notices are served should be called upon within a certain time to specify their objections, if any, to the proposed building. The building owner would then know the persons from whom he must expect opposition and claims. It would be difficult to take away an adjoining owner's rights to compensation for injury to light upon a failure

to answer such a notice, and it would not even be possible, I think, to settle the amount of compensation to be paid in any case before the buildings were erected. But the

OBJECT TO BE ATTAINED

would be to get settled at once, by a competent tribunal, whether upon the plans deposited the building owner should or should not be restrained by injunction; and I would suggest that no person who had been served with the notice, and had failed to object at the time to the proposed building, should be entitled subsequently to apply to have the building pulled down. If, on the application of objecting parties, an injunction was granted by the court, of course the building owner would have to make fresh plans; if no injunction was granted, then he would be free to build, but, on completion, he would be obliged to meet any claims made against him for injury to light or air. The distinction between an injury which will entitle an adjoining owner to an injunction, and an injury which would only entitle him to damage, has been more or less defined by many judicial decisions, but the principle of those decisions might be codified so as to strengthen and direct the tribunal who in the first case have to decide whether an injunction should be granted or not. This tribunal should, I think, be able to decide this preliminary question without a jury; but when the building was erected, unless the parties had in the meantime agreed, I think a claimant should be entitled to a jury if he wished it, the tribunal of course being the same. I do not think it necessary that the tribunal should only have to deal with matters of right to light. There are

A GREAT MANY DISPUTES

about building, engineering, and other technical matters which may well be disposed of by a similar court. One of the most important matters in view of legislation is to provide some remedy for the enormous costs which a litigant may be put to now without any means of preventing it. There are, as most know, two scales of costs, one between party and party, and these are all a successful plaintiff or defendant can recover; and another scale called solicitor and client costs, and it is the difference between these two which a successful defendant or plaintiff has to pay. In the cases in which expert evidence, models, and so on are required, this difference is very great. Eminent judges have already expressed an adverse opinion on these two scales of costs, but in the case of

A TECHNICAL TRIBUNAL

being created to settle and dispose of the matters I have indicated, the tribunal should have power to regulate the scales of costs as well as the procedure, subject to the approval of the Lord Chancellor. This was so provided in the case of the tribunal of appeal under the London Building Act. I think this tribunal affords an illustration of the advantage to litigants of having their cases disposed of by men with a practical knowledge of the subject. I do not say this because I am a member of that tribunal, but because persons have found out how promptly their claims are disposed of and how short the trial is, this being due in a large measure to the fact that the tribunal always views the site or the buildings, as the case may be. With a similar tribunal light and air cases might, I think, be disposed of equally well.

The organ at Freshford parish church has been considerably enlarged and improved, and has been erected upon a platform, which accords with the Architecture of the church.

The Leeds City Council has been recommended by the Sanitary Committee to accept numerous tenders for work in connection with the building of the new hospitals at Manston. The cost is £5051.

The Committee of Perth Town Council met with Mr. Westland, of Messrs. Blyth and Westland, engineers, and opened the offers for the new bridge. As it was found they considerably exceeded the probable estimate, they were remitted to the engineer for examination and report.

DECORATIVE DESIGN.*

By LEWIS F. DAY.

DESIGN was in the first place an Art, and in the second place it was a craft. The Art could not be taught, but the craft could, and the place to learn it was not in the school of Art at all, but the workshop. But then they wanted an ideal workshop, where the one and only thought was to do good work. Such a place might have existed at some time, but where could they find such a workshop now? Owing to whatever cause, possibly force of circumstances, the workshop of the present day was just the last place in the world where the learner was allowed, much less encouraged, to do what made for Art. That was

WHY SCHOOLS OF ART WERE NECESSARY

to supplement the practical workshop teaching, and not seldom to correct it; but, though the workshop, as they knew it, was artistically of much less help than the school, still the way to learn design was much more the workshop way than the school. One great resource of the practical designer was suppleness in execution. A student should never be allowed to make the designs in the air, or put down a line which did not mean something. He was certain that school teaching should be more on the lines of the ideal workshop. A student would get more out of it if the teaching was not so academic, and it was the recognition of this fact that had given rise to the demand for technical education. They wanted more practical education in their schools. There was

TOO MUCH TALK ABOUT ART

altogether. There was too much "swagger," though in all good workmanship there must be something which comes near to Art. They could not altogether separate good work from what was beautiful. Good workmanship blossomed into beauty, and that was Art. Out of workmanship grew character peculiar to the mode of work, and so they got what was called style. Technique pointed out the way to design. In every difficulty of design they required to consult the material. They wanted to know what form to give it, and the treatment to apply to it, therefore they must consult the material, which would point out the way. It had always pointed out the way. If they wanted to learn a design they must begin by trying to do something on the lines suggested by the circumstances.

* Résumé of a lecture delivered at Belfast.

EXTENSIVE alterations are about to be made at St. Aubyn Church, Devonport.

A NEW Wesleyan school-chapel has been built at Hexthorpe. The premises are in the back portion of the site, and on the frontage it is proposed to build a chapel at a future date.

A MEMORIAL BRASS to Thomas Arnold, D.D., has been placed on the north wall of Laleham Church. It is carved in brass, with letters in relief, the brass being designed and executed by Messrs. Benham and Froud, Chandos Metal Works, London.

The new organ is now in course of construction in Lincoln Cathedral. The contracts entered into are with Messrs. Willis for the organ for £23605, and with Messrs. Bergtheil and Young for the electric blowing apparatus for £357 10s.

The Office of Works are now securing the whole of the large range of offices in Westminster Palace Chambers, opposite the Houses of Parliament, which are being prepared to house the Local Government Board officials, who are to be moved from Charles Street while the new Government offices are building.

The Town Council of Plymouth has applied to the Local Government Board for sanction to borrow £22,306 for a Museum and Art gallery, £550 for street improvement, £2500 for public lighting, £15,800 for the reconstruction of sewers and the repaving of streets, and £1340 for the purchase and adaptation of premises for a fire and police station.

LONDON ARCHITECTURE.

OUR MOST BEAUTIFUL BUILDINGS.

A BATCH of distinguished artists and architects have thought it incumbent upon them to tell us what is the most beautiful new building that has lately been erected in London. These thirty academicians and aspirants to academical honours tell us that they are aghast at the unblushing manner in which Sir William Harcourt and the First Commissioner of Works have ranged themselves among the Philistines. Admirers of Harcourtian epigram will not need to be reminded that Sir William recently described Mr. Norman Shaw's New Scotland Yard as decoratively "inferior to the establishment of Messrs. Crosse and Blackwell on the other side of the water." To him enter the prophets, who rebuke him with their unanimous verdict that "of the public buildings erected by Government in London during the present generation, New Scotland Yard is the one of which London may be most justly proud." Disputes upon taste, although

within, but of its outward aspect the best we can say is that it is just the sort of building from which to look out at the statue of

BOADICEA AND HER PRANCING WAR HORSES.

And had the Romans been faced, upon their landing, with such an apparition as that, we are quite sure, continues our contemporary, they would have been very glad indeed to return at once to those three parts of Gaul from which they set out. But this matter of New Scotland Yard, its beauties and its graces, is only a very small part of the much larger question of the adornment of London. It is difficult to induce the foreigner, whether he come from Paris or from Rome, from Brussels or Vienna, to admit that London is a beautiful city. We are satisfied that, in certain aspects and in some conditions of light and atmosphere, it is an exceedingly beautiful place. Its crepuscular effects are superb. When an orange tawny sunset gleams dully through the film of smoke, touched with haze, which lies above the roofs, we get a variety of colour effects which it would tax the palettes of the thirty prophets to realise. As a matter of

utterly dwarfs the Savoy next it. It is precisely this organised artistic control which is London's crying need. It is of course a counsel of perfection to say that we want a Hausmann with plenary powers in his pocket and millions at his back. The County Council is too busily engaged in hounding down the landlords, and endeavouring to obtain control of the water supply, to have any leisure for making

"LONDON BEAUTIFUL, LONDON CLEAN."

The Office of Works, with the very capable assistance of Sir John Taylor, does what it can: but it is hampered and controlled in all manner of ways. Unfortunately (sometimes) we are not a people who take a bold grasp of things. It is not our way to make clean sweeps. Sir Christopher Wren was not allowed to rebuild London after the fire, as he implored to be permitted to do. Had he been given a free hand on that unique occasion, we should now have a city of broad streets and fine architectural masses. "Instead of which" we have to put up with squalid thoroughfares lined by garish shops and pretentious public



Old Cottages
Newfor. S. Cyres

nearly always fruitless, are generally beautiful opportunities for saying nasty things about the artistic perceptions of those who differ from you; and in this happy land every man is his own Committee of Taste in such matters as this. But it is somewhat of a shock to the common man, who knows what he likes, but cannot always give a better reason for his preferences than was forthcoming in the classic case of Dr. Fell, to find all the prophets prophesying falsely. We have no wish, says the St. James's Gazette, to dogmatise upon the matter; but we are pretty certain that most people agree with Sir William Harcourt rather than with the artists. There are

MANY WORSE BUILDINGS

in this capital than New Scotland Yard; but assuredly it does not arouse the artistic enthusiasm of most of us. It is, no doubt, quite different from everything else in the neighbourhood, which is hardly a recommendation; but to the untutored mind it presents itself as heavy, dismal, dark, and altogether inelegant. It may be the pink of convenience

fact, they have been very rarely realised. But the foreigner reckons little of these things. He looks for fine masses of Architecture, for stately streets as broad as the Thames, shady with trees and restful with seats, and he has to return home to find them. London is a city of mean streets, paved not with the gold of legend, but with the mud of fact. When, by a happy chance, we do obtain a really fine and adequate building, such, for instance, as the new Institute of Chartered Accountants, the narrowness of the streets prevents its being seen. We have few palatial buildings, and practically no grandiose ones, if we except St. Paul's Cathedral and Somerset House. Our municipal pastors and masters committed

AN ARTISTIC CRIME

when they failed to provide that the Thames Embankment should be lined with palaces fit to range with Sir William Chambers's great masses. Were there any sort of control over these matters, it would not have been possible to build the Hotel Cecil, which completely disfigures that end of the riverside, and

buildings which, for all the Art that is in them, might be designed by a little boy playing with a box of German bricks. Yet we need not be so pessimistic as to fancy that nothing can be done. It is unquestionable that, during the last twenty years, much has been accomplished in the widening of streets and in the general improvement of our everyday Architecture. There is no great reason to be ashamed of Northumberland Avenue, for instance, with its terra-cotta Constitutional Club and

ITS THREE GREAT HOTELS.

The club is really decorative, and the hostelrys, if not "artistic," are at least sightly. But generations will be needed to undo the mistakes and carelessnesses of the past. Should the Surrey-side Embankment advocated by Mr. Douglas Young ever be constructed, a splendid opportunity will be available to line the southern shore of the Thames with stately piles of brick and stone which, without being sombre, would yet be dignified and splendid. There is no reason in the world why we should not undo many of our mistakes.

GLASS PENS FOR DESIGNING.

BY THOMAS BOLAS, F.C.S., F.I.C.

MR. THOMAS BOLAS, F.C.S., F.I.C., whose recent work on "Glass Blowing and Working" was reviewed in our issue of the 30th ult., gave a very interesting demonstration on the making of glass pens, with special references to their use for design, before the Society of Designers yesterday week. Mr. George C. Haité was in the chair. Mr. Bolas gave many important hints on glass blowing in general, and went on to state that for the most part glass modelling is done by natural forces. Glass may be said to shape itself; hence the beautiful forms it assumes. It is most general to blow from glass tubes rather than from rods, as it allows of more speed and better application in the general forms. In delicate and complex manipulations it is usual to blow from glass rod, a tube being placed on a softened rod, and the rod then blown out into bulbs by means of this tube. In the case of pens, the nib is blown from the tube, the handle being of rod. It is best to have the handle of a pen of coloured glass, so that one can see where it is easily, and the nib of colourless glass, to allow of the ink being seen. In the bulbous nib of the pen a hole is provided by which the air can enter, primarily to allow the ink to flow, and should be made of a funnel shape, so that when taking ink from a brush it is easy to insert the ink. A hole of a small size is made by blowing hard internally at the spot where the glass is softened, while in the flame; but if a funnel-like hole is required, it is obtained by blowing continuously, while out of the flame, thus producing a thin elongated bulb, which is broken off, leaving a large hole, the edges of the hole then being rounded off in the flame. The point of the nib is made by drawing the bulb, first made at the end of the pen, out until it parts, the end cut off, and the sharp edges rounded off in the flame. The pen points can be bent to any angle so as to suit the artist, and where required to draw on horizontal surfaces the point is turned slightly downward, and for drawing on vertical surfaces turned upwards, which latter pens, Mr. Haité stated, would be very useful, as he did not know of any other pens which would write in this position. Of course, no guarantee could be given to make pens of exactly the same size and shape, and also the amount of

ink they would hold would be determined by the capillarity of the nib. Mr. Bolas then went on to state that for making the fluted glass stylus he had found an improved method. The common stylus was drawn out to a point from a fluted rod, but he had grouped together a bundle of six rods round a central one, and had drawn the seven out together, thus obtaining a composite rod of the same section as the seven, having re-entering angles. The composite rod was then drawn out to a point until only the central rod remained on the point, and whereas in the case of the common stylus the point is ragged, he ground his even on ground glass or a hard stone, such as is used for hones, water only being used in the grinding. If these were introduced on the market the point would best be left rough, so that the artist could grind the point for himself to whatever thickness of line he desired. In conclusion, Mr. Bolas said that glass-working at the blowpipe was of great value, for as glass was capable of most beautiful treatment, models could be made at home by the blowpipe, and then made on a larger scale from the model at the glass-house, which models would possess the advantage of having been already made in glass, and thus being capable of reproduction, and, not as in the case of some designers, whose designs it was impossible to carry out. He showed as an instance of how glass could be made to shape itself by winding a thin rod of softened glass on a closed tube, and then blowing to a bulb, when the glass formed a perfect spiral, the pitch of which was determined by gravitation and the angle at which the shaft was held.

THE old Prince of Wales's Theatre, off Tottenham Court Road, is to be pulled down. It has been sold by auction. It has not been used as a playhouse for many years.

THE foundation-stones of the new Sunday schools in Higher Tranmere, Birkenhead, have been laid. The schools, which are to accommodate about 600, will cost £3600. The plans have been prepared by Mr. T. W. Cubbon.

IN connection with the proposed memorial to Sir Frank Lockwood it has been decided to (1) To obtain a portrait of the late Sir Frank Lockwood, to be placed in the National Portrait Gallery. (2) To place a brass to the memory of Sir F. Lockwood in St. Margaret's Church, Westminster. (3) To erect a tablet or other memorial to Sir Frank Lockwood's memory in York Minster.

KEYSTONES.

STRAND improvements continue to be the order of the day in that greatly frequented region. The eastern approach to the Hotel Cecil is fast approaching completion. The demolition of the shops will reach eastwards as far as Carting Lane, one of the oldest thoroughfares leading down to the Thames in that part of London, and at present one of the approaches to the Savoy Theatre. How it will be dealt with finally has not yet been settled.

THE removal of thick incrustations of dirt and varnish from the old woodwork above the outer central doors of the northern porch of Westminster Abbey, prior to polishing it, shows that the wood is thickly penetrated with a great quantity of small shot, and bears bullet marks. The old doors beneath were removed about three years ago to admit of a freer method of egress, and they were riddled in a similar manner. The Abbey workmen engaged in cleaning the woodwork say it is four or five hundred years old. It is of very thick oak, and studded with large iron bolt-headed nails, and it and the old doors have filled a space about 15ft. in height by 7ft. in width.

THE Strand Board of Works recently considered a report of the Improvements Committee dealing with the important subject of the widening of White Hart Street, by the carrying out of which there would practically be a straight line 40ft. wide from Catherine Street to the recent improvements in Clare Market. Mr. Cox, in moving the adoption of the report, remarked that this much-needed improvement could not be effected except at great cost, unless by arrangement with the Duke of Bedford, who would otherwise build on the area, leaving the present narrow street and insanitary conditions unaltered. As the result of negotiations with the Duke of Bedford's representative, the Board had been able to arrange that the latter's contribution should not exceed £3000. The vestry of St. Martin-in-the-Fields had agreed to contribute £5000, and if the London County Council contributed three-fourths of the net cost, estimated at about £32,000, the work could be carried out. It was proposed that the London County Council should be communicated with, and that the improvements should be carried out in co-operation with that body and St. Martin's Vestry. The report was confirmed.



All the above, with exception of thickest four parallel lines, drawn with one pen.

Fig. 97, reduced to half the scale of the original



Fig. 98 reduced to half the scale of the original

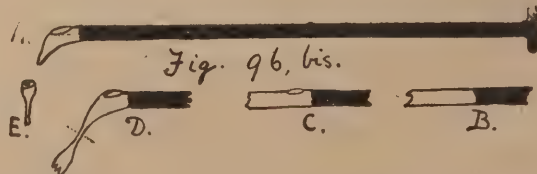


Fig. 96, bis.
A. Pen complete. B. Piece of tube joined to rod. C. Hole blown in side of tube. D. Tube drawn out and cut off where desirable. E. Nib of Pen.

STAGES IN THE MAKING OF A GLASS PEN.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
April 13th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

MR. A. J. NUTT has been appointed by the Queen as clerk of the works at Windsor Castle, in the room of Mr. Robert Howe, deceased. Mr. Nutt has hitherto held a position under the Dean and Chapter at Windsor, and he will now combine the two appointments. He has carried out considerable decorative work at the Castle, and his services are highly valued by the Queen.

AFTER a considerable amount of deliberation, assisted by the advice and experience of Mr. G. T. Hine, who was chosen as consulting architect, the Birmingham Lunacy Asylums Committee have selected the firm of architects they wish to recommend the Council to appoint as the designers of the new lunatic asylum for the city. At a meeting of the committee the report of Mr. Hine was received, and they had an interview with him. He recommended that the plans marked "Forward" should be selected, and the committee unanimously decided to recommend to the Council the authors of those plans (Messrs. Martin and Chamberlain) as the architects of the new asylum.

OBSERVANT folks passing Ludgate Circus lately could hardly have failed to note the disappearance of the familiar obelisk that, about the middle of the seventies of the last century, was erected in honour of John Wilkes, of North Briton fame, when he was Lord Mayor. By reason of certain excavations in progress it was found necessary to take down the monument, but it will be re-erected when the work is finished. A print of 1795 shows this obelisk surrounded by railings and posts, with lamps fixed to the stonework. The obelisk facing Wilkes's commemorates another civic dignitary, Robert Waithman, who was Lord Mayor in the twenties of the present century, and who was a doughty champion of Parliamentary reform. His shop was situated at the south-west corner of Ludgate Circus, but was taken down when the circus was constructed in 1870. These monuments stand on the covered-over Fleet River, and the space between them was anciently the Fleet Bridge.

WRITING to the St. James's Gazette, Mr. B. H. Holland says:—"From the Marble Arch to the Bank stretches the long, unlovely street called Holborn at its eastern end, and at its western, Oxford Street. Through its whole noisy and crowded length it is unbroken by the sight of a green tree, nor is there a seat on which the weary wayfarer can repose. About half-way, a little to the north of it, the front of the British Museum, which is, in spite of defects, one of the most impressive pieces of massive Architecture in London, lies completely hidden behind a block of houses lying between it and Oxford Street. If to beautify London is within the programme of the present

County Council, I would suggest for their consideration an improvement which would be a benefit for all classes. Let them obtain powers to buy up the whole block of buildings between Oxford Street and the Museum, and then transform the site into a well-planted piazza-garden with many a seat and a municipal café in the centre. This would be an oasis of refreshment and shade on summer days. Some future Council might drive thence a true boulevard due southwards to the Thames. London fails in two great respects—first, that there is no effect of ensemble, that the streets and great buildings do not co-operate. Second, that no main street in London is broad enough to allow people to sit on chairs in it and drink beer and coffee, and smoke, and observe the passing throng. This is partly the reason why most Londoners hate London, and are always pining in the warmer weather to escape to the country. And a Parisian forced to dwell in London in the summer must indeed be an unhappy being."

THE Council of the Imperial Institute has authorised the holding of an exhibition of acetylene gas apparatus in the grounds of the Institute at an early date, and, in order to ensure that no apparatus should be admitted to the exhibition unless it was shown to fulfil the requisite conditions of safety, the Council of the Society of Arts has appointed a committee to decide upon those conditions, and to lay down rules for the admission of apparatus.

THE restoration of Bradford Parish Church is being proceeded with rapidly. Antiquaries will be interested to hear that it has been resolved to open the recently discovered "squint" (an aperture made in the chancel to enable persons to see the altar from the side chapel or whilst in the aisle) into the church on the north side of the chancel, and that the priest's chamber will be rebuilt as muniment rooms, so that this quaint feature will be preserved in its original form. The outlay was originally estimated at £6000, but it will now exceed that sum.

THE London County Council, at its meeting last week, received a report from the Fire Brigade Committee recommending that the work in connection with the enlargement and alteration of the Hampstead firestation should be carried out by the Works Department at an estimated cost of £4900. Tenders were invited for the work, and several were sent in, the lowest amounting to £4854, but in this case the tenderer intimated that he could not accept the Council's payment clause. The architect's revised estimate for the work was £4637. The next tender amounted to £4986. The committee recommended the acceptance of none of the tenders, and that the work should be carried out by the Department. The same Committee recommended that the work in connection with the erection of a building for the Battersea river station should also be entrusted to the Department at an estimated cost of £7533. For this work also tenders were invited.—Both reports were adopted.

At a largely attended meeting of the Liverpool Chamber of Commerce, Mr. John J. Webster, M.I.C.E., of London, explained at length a scheme which he and Mr. J. T. Wood, M.I.C.E., had prepared for carrying a roadway bridge 62ft. wide over the Mersey from Liverpool to Birkenhead. The proposal is to start in St. George's Crescent, Liverpool, passing over the site of the buildings between and at the rear of the James Street and Red Cross Street properties, turning to the left along Strand Street, then crossing the Lock Pit between Wapping Basin and Salthouse Dock at an angle, and on to the riverside south of the Manchester Dock, where the east abutment of the proposed bridge would be erected. From this position the bridge would cross the river, and be carried to the corner of Hamilton Square, Birkenhead. The estimated cost of land and bridge was £2,750,000.

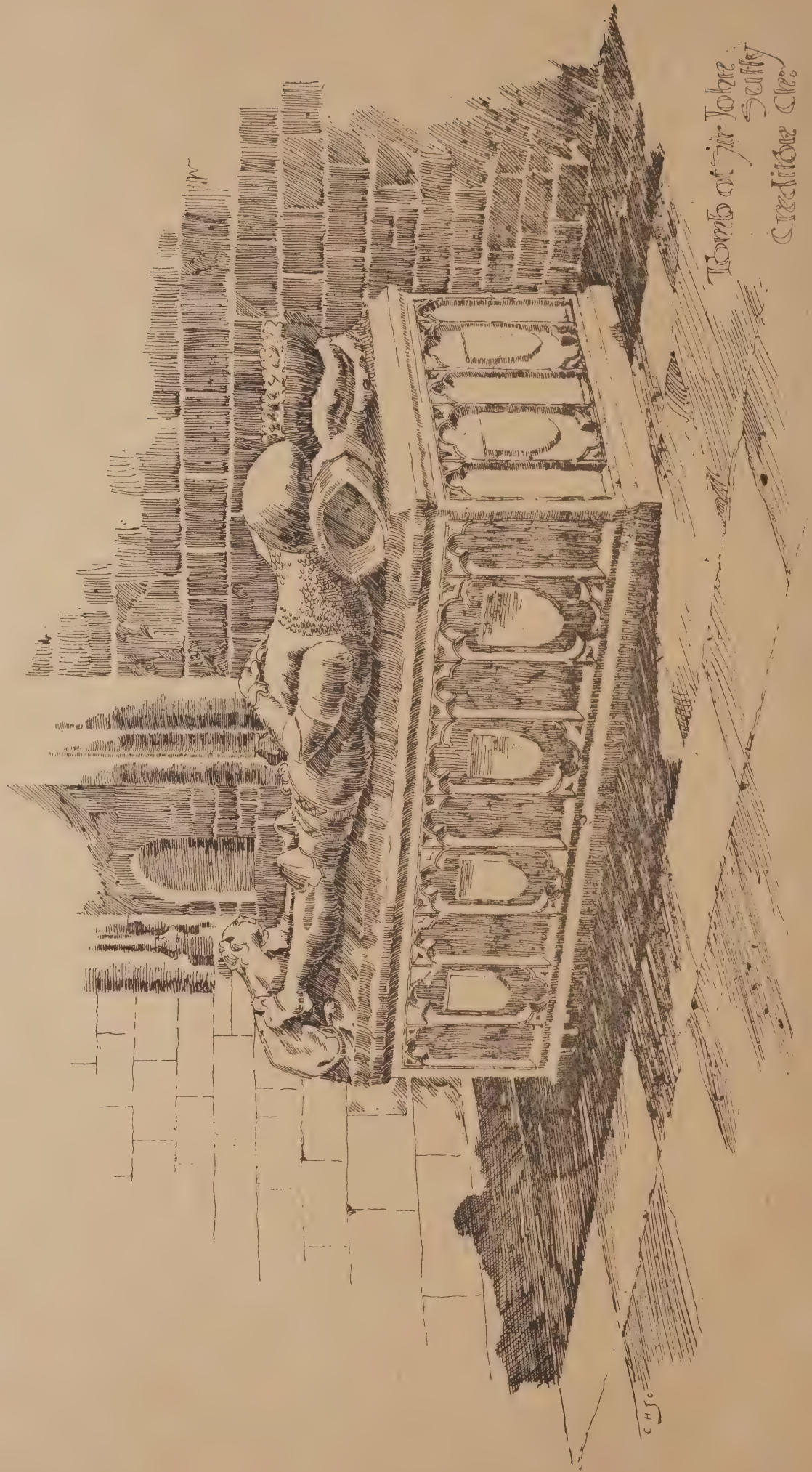
VISCOUNT PEEL recently opened a free picture exhibition at the Public Hall Canning

Town. He expressed his surprise at the quality of the pictures got together, and remarked that he agreed with Zola's definition of a picture, as Nature seen through the medium of an artist's temperament. If a man were worth anything he would throw his own character into the picture he painted, and the artist who gave to us what was natural and beautiful would command the largest suffrages. There was in all of us a latent quality, not only of criticism, but of appreciation, and, though a picture giving a striking scene of history or of violence, but without artistic value, might appeal to the masses in a greater degree than some unobtrusive piece of scenery of great merit, the better picture would secure its own approval in the long run. Except, perhaps, the few born artists, we all require to see pictures through the artist's eyes, and the more we were educated the more would we admire the great pictures which in the different galleries of Europe were the wonders of the world. Hogarth had shown us there were plenty of objects and scenes in the common walks of life worthy of transference to canvas. There was a harmony in Nature—Lorenzo spoke to Jessica of the harmony that is in immortal souls—a harmony which, perhaps, we might not appreciate so long as we remained in this mortal sphere, but a harmony of which we might be able to catch something under the teaching of the great artists.

THE Cairo correspondent of the Times says: French engineers have been decidedly unlucky over bridge building in Egypt. The Erubabeh railway bridge crossing the Nile near Cairo, completed in 1892, was last year discovered to be in such bad condition as to be positively dangerous for the passage of trains, and is now being repaired at a cost to Government of £40,000. The price paid to the French builders was £84,000. The new bridge at Nag Hamadi, in Upper Egypt, lately opened for traffic, caused during its construction a great loss of life amongst the workmen by the upsetting of a caisson, and is now again in trouble. This is owing to the turning gear of the swing span (used for passing boats through) resting upon wheels instead of live rollers, as is usual, and consequently much greater friction is produced. The gear not having been made of corresponding strength, the teeth chipped off when the span was used, finally disabling it, so that the span has to be hauled round with ropes. The girders have the faults which good engineering authorities say may be expected from Continental competitive designs, viz., the sections are cut down to what is required by theory irrespective of the limit of a minimum thickness, which experience has shown to be essential for durability. It appears to be the custom in France to build bridges for Egypt of basic Bessemer with punched holes, in which case the thinner the plates are the better, so that to a certain extent the one evil compensates the other.

A FEW days ago, while digging the foundations for the Church House, in connection with All Saints, Dorchester, the workmen came upon part of a tessellated pavement and other indications of a Roman villa. A porringer in a good state of preservation was unearthed a few feet below the surface, together with a vase, apparently of great age.

ARE we really to have an expenditure of some five or six thousand pounds of public money upon founding in bronze the statue of Boadicea? The public, says the St. James's Gazette, has clearly never believed that the matter would be seriously taken up by the County Council, or else it would have pronounced emphatically upon the acceptance of what is nothing more than a second-rate piece of sculpture. If the Council is so anxious to spend money on the decoration of London with statuary, it would be doing better, almost, to accept Mr. Adrian Jones's group which he designed for the summit of the arch on Constitution Hill. It, again, has no pretensions to being an exceptional work of Art, but it would meet a want and complete a design which at present is decidedly deficient.



Tomb of Sir John
Sulley
Crediton, Devon



SKETCHES AROUND LONDON. No. 1.—STRAND-ON-THE-GREEN, CHISWICK. DRAWN BY H. F. W. W.

THE Thoresby Society recently met in Leeds to hear Mr. S. J. Chadwick, F.S.A., describe some "Old Glass in Dewsbury Church." Originally the glass was in several windows, but it is now in the north transept window, having been rearranged in 1887 by Mr. Knowles, of York. It comprises some very fine examples of fourteenth century glass, including what are called quarries, which consist of various specimens of birds, animals, and foliage, all beautifully drawn and executed. The window bears several coats of arms. There appear the arms of the Earls of Warren (once the owners of the Manor of Wakefield) and their ancestors, the St. Martins, as well as the shields of Scargil, Lathom, and Despencer. Some beautiful borders are supposed to be commemorative of Eleanor, wife of Edward I. The window is further enriched by symbols of the Evangelists and three roundels of the seasons—winter, summer, and autumn—which are considered most remarkable, and almost unique.

THERE has been a transformation at the Oval from the old irregular pavilion to a new palatial structure. The cost of the change is likely to be considerably above £30,000. The new red-brick building, with Bath stone facings, has a frontage of 300ft. It much surpasses in its imposing nature its model—the Lancashire pavilion at Old Trafford, Manchester—and also the handsome red-brick and terra-cotta work at Lord's. Both inside and out the buildings are in a very forward state; but the contractors—Messrs. Foster and Dicksee, of Rugby—are greatly indebted to the openness of the winter for the advanced state of the works. For the new tavern some 28ft. of the space in front of the old building has been absorbed in order to provide a better way between the pavilion and the hotel. This alteration still leaves a good approach to the Oval gates by the curve which has been made. The best places for following the game have been given to the gentlemen engaged in the cricket; their dressing and sitting rooms command an exact end-on view of the cricket pitch, while the professionals have almost an equally good position. On the ground-floor of the pavilion the secretary has a room commanding the whole of the ground, and immediately above him is the committee's place. For the public a spacious luncheon-hall has been constructed at the back of the hotel.

UNDER the auspices of the Carpenters' Company, at the Carpenters' Hall, Dr. G. B. Longstaff recently lectured on "The Municipal Control of Buildings." In the course of his remarks, the lecturer referred to the difficulty of the municipality controlling buildings. In the case of a city such as London, difficulties were inherited from bygone ages, because the buildings were already in existence with all their faults and imperfections, and, therefore, almost beyond control. In the case of a new town springing up it would be a very easy matter to draw up a code of regulations which should be fair and equitable for all the needs likely to be met with; but in the case of a great established city like London the details presented such an infinite complexity of varieties in the size, style, characteristics, and purpose of the buildings and the streets in which they were situated that one hardly knew what to do. Why, then, attempt to control buildings? it might be asked. Why not let every man build as seemed good in his own eyes? It must, however, be remembered that as soon as people came to live in towns they ceased to be independent in their actions. True and perfect liberty of the individual could not exist in any town. What one did must affect many others. No man could be allowed a liberty which injuriously affected others, and hence the need for building legislation. Improved sanitary conditions were necessary to counteract the decline in the healthiness of the various occupations, and the crowding into small spaces of large masses of population. In conclusion, he touched upon the need of making beautiful the buildings in large towns, because, as the years went by, the increasing size of those towns made the natural beauties

of the country less accessible. He strongly condemned certain abuses of advertising which disfigured the fronts of houses, and he mentioned as a curious fact in this connection that in Regent Street there were no such eyesores. The street belonged to the Department of Woods and Forests, and, while advertising of the obnoxious character referred to was forbidden, as a compensation the exteriors of the premises were painted by the Government every two years, instead of every three. He pleaded, too, for the preservation of interesting old buildings, expressing especial pleasure at the fact that St. Mary-le-Strand, although threatened more than once, still remained.

MANY lovers of Old London will regret to hear that there is a prospect of our losing the interesting old gateway which, at the south-end corner of Smithfield, leads to the Church of St. Bartholomew the Great. The whole of the ground between this point and Aldersgate Street was originally granted to Rahere, minstrel to Henry I., who founded the Priory of St. Bartholomew in 1102. On this site grew up a large monastic establishment, enriched by the profits of St. Bartholomew's Fair, held on Smithfield. The Priory had gardens and orchards, and a magnificent church, of which the present Parish Church of St. Bartholomew the Great was only the choir. With the Reformation, the Priory fell into the hands of a greedy courtier, Lord Rich, afterwards Lord Holland. He pulled down much of the Priory and let its grounds out on building leases, while he built a great house for himself in Cloth Fair. That house still exists and bears his arms. On the site of the Priory grew up the winding network of thoroughfares now called Bartholomew Close. Here lived Hubert Soeur, the sculptor of the statue of Charles I., now at Charing Cross. The present gateway is of the Early English period architecturally, with a finely-pointed arch, consisting of four ribs, each with numerous mouldings, receding one within the other, and decorated with roses and the "dog-tooth" work familiar to antiquarians. It was undoubtedly the entrance to the south aisle of the old Priory Church. The aisle has vanished altogether, the gateway has had a brick house built over it, and is now the principal entrance to Bartholomew Close. Since the great fire on the other side of Aldersgate Street, eastward of this spot, it is proposed to drive a new street right through Bartholomew Close, and in that case the gate will probably be pulled down.

At a special general meeting of the R.I.B.A. on Monday 4th inst., Mr. Alex. Graham, F.S.A., who was in the chair, proposed, in accordance with a recommendation of the Council, that Professor Aitchison, R.A., be requested to allow himself to be nominated as president for the year 1898-9, and that consequently bye-law 26, which limits the duration of the presidential term of office to two years, be suspended. Mr. John Slater seconded the resolution, which was carried unanimously. A meeting to confirm the necessary suspension of the bye-law will be held on the 18th inst.

THE exhibition arranged at Messrs. Tooths' Galleries, Haymarket, is of the usual order in so far as miscellany of schools and of subject in the pictures go, but it seems of rather higher level than the shows of the last year or two. Some of this favourable impression is due to the small room being given chiefly to watercolour drawings by the earlier English masters, together with examples of one who can stoutly hold his own with them—Thomas Collier—and a couple of tiny drawings by Chevallier, extraordinary for character and for microscopic execution. The drawings by deceased British painters are not of the quality we are accustomed to find at Agnew's, but that is not to say that nothing but the best is a desirable possession.

THE annual spring exhibition at Mr. McLean's Gallery, Haymarket, is about equally formed by British and by foreign paintings. The Russian painter Harlamoff fills one post of

honour with a picture of a young girl in very incongruous attire and carrying long-stemmed chrysanthemums, "A Strolling Player." Her face is rather pathetic, and, as usual with Harlamoff, is somewhat morbid in the fleshy tints. Opposite it is the large "Whispers of Love" by M. Bouguereau, that has been in public before. Its academic chastity and faultless draughtsmanship are agreeable. On the centre of the long wall a meretricious and feeble example of Munkacsy is seen in "In the Conservatory." These are the largest but not the chief pictures.

A CORRESPONDENT writes to the Times:—"The history of the Fragonard pictures at Grasse, which have recently been purchased by an English Art dealer, is a very curious one. They were painted in Paris by Fragonard, a native of Grasse, for Mme. du Barry's house at Louveciennes, but had not been finished when she was arrested and condemned to the guillotine. Fragonard, in alarm lest he should share her fate, went off to Grasse with his paintings, and lived there in obscurity for many years. The pictures, which represent the seasons, then passed into the possession of his son, a pupil of David, who thought them execrable, and at his death in 1850 the house and its contents became the property of two brothers, distant relatives, who had no higher opinion of these pictures. They were taken by one of the two at a valuation of £20, and would have perhaps remained for ever unknown had it not been for M. Sardou, who, as the story is related with much detail by M. Jules Claretie, made the owner acquainted with their artistic and commercial value, but could not persuade him to part with them to the State even for a high price. He had allowed M. Sardou to understand, however, that he might give them to the Louvre if the Legion of Honour was conferred upon him, and M. Sardou had secured the assent of Gambetta, then Prime Minister, to this when the latter's short-lived Ministry fell, and the project was never carried out. The owner of these beautiful compositions, which all the leading critics of the day now regard as Fragonard's masterpieces, had since then declined to listen to any proposals for their sale, and was even very reluctant to let them be seen; but he has at last been tempted by the offer of £60,000, and, as M. Jules Claretie says, 'they are now crossing the Channel to represent French Art of the eighteenth century among the Reynolds and the Gainsboroughs.'"

CARDINAL VAUGHAN has recently issued a circular to the clergy of his arch-diocese giving an account of the work done to date in respect of the new metropolitan cathedral at Westminster, and particulars of the work yet to be done. The circular states that the cathedral will consist of a noble porch, a narthex or vestibule extending across the whole width of the cathedral, a campanile, a nave, and two aisles, with eight side-chapels, and transepts; a sanctuary 4½ft. above the nave, with the Blessed Sacrament Chapel and the Lady Chapel at the sides; beyond the sanctuary a raised choir, 13ft. above the nave, for the chanting of the divine office, with a crypt beneath it; a spacious gallery over the aisles, and at the west end; behind the Blessed Sacrament Chapel, two vast sacristies, and other rooms connected with them. Internally, the appearance of the cathedral, it is stated, will be exceedingly impressive—with the full view of its 342ft. of length; its vast nave much wider and higher than any nave in England; the twelve lower arches, on each side of the nave, supporting the stately gallery; above each two of these arches, a lofty arch of 73ft. in height; above each two of the latter, a still loftier arch of 90ft.; and, rising above the highest arches, the three domes of the nave. Besides the nave, there will be the aisles and the side-chapels; the transepts, with the two spacious chapels opening into them at each side of the sanctuary; and the whole interior will be so proportioned, in the subordination of its various parts, that, vast as the cathedral will in reality be, its dimensions will appear even greater than they are.

Surveying & Sanitary SUPPLEMENT.

APRIL 13TH, 1898.

MASONRY.

BY JAMES WILDING.

II.—MOULDS FOR THE COPING, &c., OF A SKEW GABLE.

THIS is a difficulty of common occurrence, as it often happens that a building has to be erected at the angle of two streets that are not square with each other.

In dealing with this problem the simplest methods have been followed, in order to ensure a result easily understood by all.

The small sketch plan A illustrates the position of the building proposed to be dealt with, better than any amount of description could do.

The vertical height of the roof is given. The obtuse angle K Z made by the two streets is 120 degrees. The acute angle L T is parallel to it, or 60 degrees. See Fig. 2.

Now examine Figure 1.

It will be seen that the plan of the top bed of the coping is put in position, and the elevation at front and back revolved into view. To perform this operation for the back elevation, set up at M the vertical height of roof—the dotted lines at K and L on plan represent the wall lines; draw M K—M L. Now draw the coping parallel to M K—M L; from the extreme projections 1—2 and 3—4 draw vertical lines; this gives the elevation at the back. Repeat this operation, and the front elevation is turned down into view. From examination of Fig. 1 it will be seen that the joint lines are square to the face line; this is to avoid the very objectionable form of the feather edge. At the acute side the coping rests in such a way that it appears strong, but on the obtuse side, with the joint line being squared from the face, it looks as if it would slip out. This is prevented by notching the joint. If the projecting lines are carefully followed it will be seen that each mould required for the preparation of each stone is clearly set forth. Take the right-hand springer, or footable, B. The mould marked B is the front face mould, B1 the bottom bed mould, and B2 is the back face mould. The joint mould to fit X Y of this stone is the one described in Fig. 2 and lettered S H A P; this will be described later. The piece of coping C, C1, C2 has for its bed mould a parallel piece of zinc, and is worked to a parallel thickness. The angles of the faces are those of the mould S H A P.

THE APEXSTONE.—D is the mould for front face, D2 that for the back face. The angle line D1 represents the line of intersection of the two roof pitches.

It will be seen from reference to the figure that the extreme thickness required is shown by the back-face mould D2. It is always well to let the elevation that is in sight be as uniform as possible; the level line is used here to give the apex a good bed. The left-hand side of the apex stone is notched, so that the back is larger than the front to remedy the appearance or possibility of slipping referred to.

The piece of coping E is worked parallel as to thickness. The mould for the joints is that shown in Fig. 2 and marked J G N I. The mould for left-hand springer F, F1, F2 is

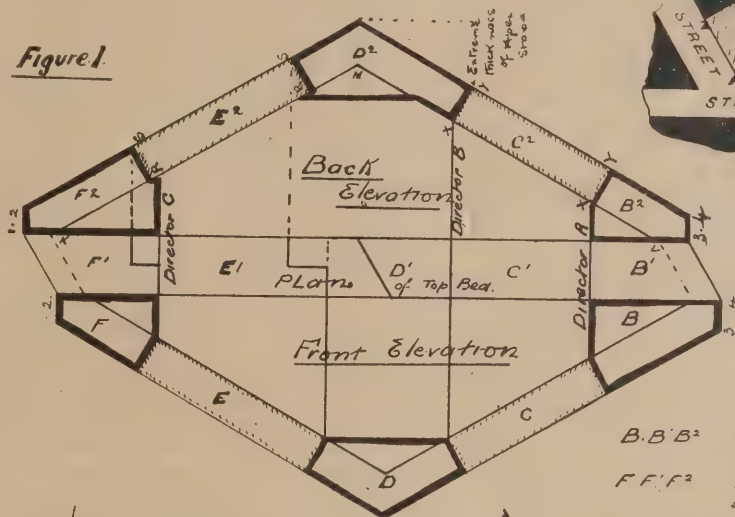
obtained by a repetition of the work described for right-hand springer. Observe the lines marked Director A—B—C (Fig. 1); these give the relative position of the stones on the back and front faces.

FIG. 2. TO FIND THE JOINT MOULDS.—Take the one marked S H A P. Draw K Z—L T—to make the angles of 120 and 60 degrees respectively with K L. This angle is taken for convenience only, the angle from the ground plan would be placed here for actual work. Bisect K L in W, erect W M equal in length to the vertical height of roof above wall plate, connect

angle 5 and the dotted lines being exactly similar to the joint mould J N G I. In order to remove any doubt in the matter, the mould for the obtuse joint is developed on its own side—the student is desired to compare it with the angle 5.

JOINT MOULD J N G I.—At any point in M K, say V, erect V U at right angles to M K, with U as centre describe the arc V J, from U, at right angles to K L, draw U Q; produce Q to W, parallel to K Z, and draw W X parallel to U V; take distance W X and mark it from Q, on the line drawn perpendicularly to Q U, thus

Figure 1

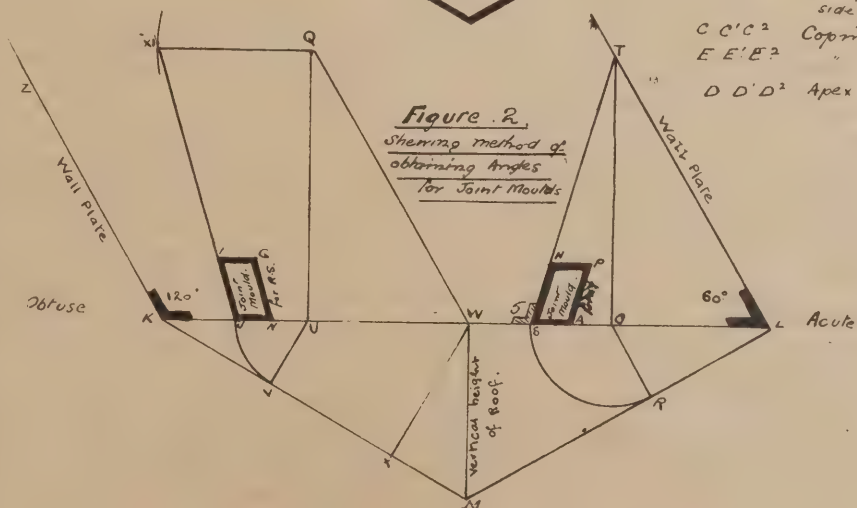


Sketch Plan showing Position of Gable.

B.B.B² Springer or Footable
F.F.F² Do for other side
C.C.C² Copping
E.E.E² Apex Stone

Figure 2

Showing method of obtaining angles for Joint Moulds



M L M K, at any point in M L, say R, erect R O at right angles to M L; from O draw O T to touch the level line, represented here by the wall plate; with O as centre and O R as radius, describe O S; connect S T, parallel to S T, draw A P, mark off width of coping S H, then draw H P parallel to S A; this gives the joint mould for the acute side. By a little examination it is easily seen that the mould for the obtuse side is also given by this working—the

obtaining the point X I; connect X I J, draw N G, i.e., thickness of coping, parallel to J I; draw width of coping I G parallel to J N—the enclosed mould is the one required for the obtuse side. Any detail can be used in the containing lines S H A P, J N G I—the straight lines being used for the sake of simplicity only. The student is recommended to set himself various angles in order to test his grasp of the principles used in this example.

EVAPORATION.*

By W. N. TWELVETREES, M.I.Mech.E.

IN Nature, evaporation is restrained by the weight of the superincumbent atmosphere, which keeps other substances within their proper spheres. Nevertheless, vaporisation takes place to some extent under all circumstances and at all temperatures, bearing a definite relation to the elastic forces of vapours evolved from various liquids. It is also affected materially by the pressure, velocity, and humidity of air passing over liquids, and by the surface exposed to its influence. These conditions must always form the subject of inquiry when dealing with appliances used for

EVAPORATIVE PROCESSES.

By the aid of calculation, the required volume and temperature of air may readily be determined, as also the number of heat units expended. Economy is frequently attained by the utilisation of waste heat from various sources. The most satisfactory test of any apparatus as to efficiency is to be found by an examination of respective temperatures and degrees of humidity of air at the point of exit. It is always desirable that the apparatus should be constructed of material possessing low conductive power, and that the internal fittings should be designed so as to expose the greatest possible surface and to prevent the escape of unsaturated heated air. Buildings used for the

DRYING OF VARIOUS SUBSTANCES,

whether building material, chemicals, or textile fabrics, should be used continuously, if possible, and not constructed in a manner sometimes adopted, in which the rooms are cooled down intermittently. Such a practice causes a considerable waste of power. When practicable, air should be delivered, not only on the outer, but also on the inner surfaces of the objects, the system being always modified to suit individual requirements, and when a building or room for drying is divided into separate compartments the

SUPPLIES OF HEATED AIR

are preferably placed under automatic control. Further, dry warmed air should be delivered at various points between the first place of entry and the exit, so that the process may be equable throughout. When natural draught is employed, attention must be paid not only to the height of the ventilating shaft, but also to area required by dilatation of volume caused by heat and by the presence of vapour, and the respective areas of the inlets and outlets must be calculated accordingly. Mechanical draught by the aid of fans is generally to be recommended, and renders easy the regulation of the quantity and velocity of air admitted, without the risk of fluctuation by disturbing causes, which are always apt to affect even the best symptoms of natural ventilation. Most evaporative processes in which heated air is employed are preferably conducted on the positive system, and pressure fans or blowers are therefore most suitable. Open fans, although extremely useful for exhausting purposes, are less satisfactory when used for blowing, and the greater area of ducts necessary is often a drawback. The friction of air in pipes must always be reckoned, and when branch pipes are used, the areas must be apportioned with due account of this factor. Steam, when available, forms the

MOST ECONOMICAL AND SATISFACTORY MEDIUM

for heating air, providing the water condensed be fully utilised without losing heat by relaxation of pressure. Stoves may also be used, but present a risk of fire, and, owing to high temperature, may vitiate air to an undesirable extent. Where steam heaters are employed, the size should always be minimised, especially in view of the fact that loss of heat by radiation and by contact of air is approximately

proportional to the surface exposed. Drying chambers for textile fabrics and clothing may be heated by stoves used in various ways, and also by high-pressure hot water and steam, particular care being taken with all

INTERNAL ARRANGEMENTS,

and the inlets and outlets being contrived so that the air traverses the chamber in a circuit. The outlet should be near the floor-line to assist in attaining this result. By the employment of mechanical draught in conjunction with a suitable steam heater, hot air may be distributed to several such chambers, and very satisfactory results obtained. The proper protection of air pipes by non-conductive material affects the temperature obtained to a marked degree. Timber drying-sheds as used on a large scale are most suitably arranged to work on the progressive system, in which the timber is stacked on cars, each holding about 4000ft. of timber; the cars are gradually pushed forward on rails in a direction opposed to that of the air. Thus the material comes under

THE INFLUENCE OF AIR,

increasing in dryness as the process approaches completion. The largest timber sheds have a capacity of 500,000ft., and a daily drying capacity of 125,000ft. Timber sheds are built in separate compartments, and special arrangements are made for the convenient treatment of small pieces, and for wooden ware generally. The best results are obtained by varying the treatment to suit different kinds of timber. Green yellow pine usually requires a high temperature and rapid circulation. Oak and walnut are exposed to a large volume of air at lower temperature. Continuity is always recommended. The regulation of temperature, volume and humidity of air, is easily effected when fans and steam heaters are used. Bricks may be dried by the aid of a similar apparatus, the chief differences being the dimensions of the building and of the cars. The former usually contains ten cars, each holding 500 bricks.

POTTERY AND CEMENT WORK

of various kinds is treated in sheds resembling those previously described. Wall paper, glass paper, &c., is usually suspended in a drying chamber on rods, to which motion is communicated, and the heated air is blown along the floor in an extended form. Chemicals, salt, sugar, starch, paint and grain are generally dried on shelves or screens, and the air should travel at moderate velocity because of the relatively small service exposed. Fibrous material, such as silk, wool, hemp, &c., should be spread on a frame having the top formed of wirework. Air is then blown through the material from the interior. The surfaces should be turned from time to time, and ample means must always be provided for the escape of saturated air. Tobacco, formerly dried by natural evaporation, is now treated by warmed air, on the progressive system, as described in connection with timber-drying arrangements. Drying cylinders, as used in cotton, woollen, and other mills, can only be briefly noticed, owing to want of space; and evaporative processes conducted in a partial vacuum, with or without the aid of heat, although equally deserving attention, must be reserved for some future occasion.

The Local Government Board has written a long letter to the Manchester Corporation declining to sanction the proposal of the Rivers Committee to deal with the sewage effluent by the bacteriological method of treatment, as an alternative to the defeated culvert scheme by which it was intended to convey the effluent to the Mersey estuary. The Rivers Committee have decided to recommend the City Council to carry out the bacteriological system in spite of the Local Government Board, and borrow the money without the sanction of that body, as they can under the Public Health Act. The estimated cost of the plan proposed is £127,000. The Local Government Board's method of land filtration would, it is said, cost half a million.

THE BIOLOGICAL TREATMENT OF SEWAGE.

By J. AIRD MURRAY, C.E.

THE West Riding County Council has recently communicated with the Local Government Board, asking whether it is prepared to pass sewage disposal schemes on the biological system, without further treatment on land, in view of the recent experiments which have been made in this direction. Seeing that sewage disposal is becoming a question of general interest and of great importance in this district and elsewhere, it may be of some use to explain shortly what is meant by the "biological system" of sewage treatment, and what the experiments are which have recently been made. There are

TWO GREAT DIFFICULTIES

in connection with sewage disposal; the first, obtaining sufficient land for filtration and irrigation purposes; the second, dealing with the solid sewage or sludge which it is necessary to collect and dry before disposing of. It has been found that if the solid matter in sewage be allowed to flow direct on to land, it very soon chokes the land, and renders it totally unfit for sewage disposal purposes. The most popular system of sewage disposal has therefore been that by which the greatest amount of solid matter has been kept back in settling tanks, and the liquid only allowed to flow on to land divided into plots. To perfect this system, various chemicals are mixed with the sewage to aid the precipitation of the sludge in the tanks. The Local Government Board and other authorities have set forth that chemical precipitation followed by land intermittent filtration is the one system which can be depended on for the best results in clarifying and purifying the sewage. It is generally accepted that the amount of land of an open friable character required for the above purpose is one acre per 1000 population, or for 20,000 gallons of sewage, and the depth of such land for filtering purposes should be from 4ft. to 5ft. The difficulty of acquiring such land at a spot suitable to receive the sewage is often extremely great. The sludge when collected is generally a nuisance, and a trouble to know what to do with, unless expensive machinery is laid down for drying and pressing it into portable cakes, even after which it is of little value as manure. The generally adopted system of sewage disposal may therefore be said to be

A SLUDGE MANUFACTURING SYSTEM.

It is very probable, however, that all this is about to be changed. The Massachusetts Board of Health, followed by Mr. W. I. Dibdin, late chemist to the London County Council, and others, has been making experiments which bid fair to open out a new era in the history of the efforts towards sewage disposal. These experiments point to the fact that it is possible to purify 1,000,000 gallons of sewage per day by passing it through an acre of filtering media (coke), with the almost entire removal or destruction of the sludge in the filtering bed. This is the biological system of sewage disposal. The biological system is founded on the line of Nature's work. It is known that organic matter is reduced in Nature to its elementary or mineral constituents by the life presence of minute organisms (bacteria). Remove these organisms from contact with organic matter, it will undergo no change whatever. Putrefaction is the result of their presence. The biological system simply helps Nature by providing in the formation and treatment of the filter bed an ideal media for the life and propagation of these organisms. These organisms are everywhere—in the earth, air, and water. They cause the disappearance of the manure we put in the garden from year to year; they destroy the leaves which fall in autumn, forming fresh food on which to build new organic life, and no matter how much and how varied are the chemicals we add to the sewage of our towns

* A résumé of a paper, entitled "The Theory and Practice of Evaporation as Applied to some Industrial Purposes," read before the Civil and Mechanical Engineers Society.

and villages, its ultimate putrefaction or reduction (unless by fire) can only be obtained by the help of these organisms.

WHAT IS GENERALLY UNDERSTOOD BY A FILTER

is merely a strainer, the keeping back of particles in the filter too large to pass through the filtering media. Such with continuous use soon becomes choked as the solid matter collects, and the filter is useless. But, on the other hand, if we can make the filter suitable to the life of the organic matter destroying organisms, the life of the filter becomes practically without limit. The one essential to the life of these organisms is the presence of oxygen; without, they will perish as sure as man does. In the biological filter, therefore, the presence of oxygen is the necessary feature. This has been partly understood for many years, as even in treating sewage on land it has been found necessary to divide the land into plots, so as to give each plot a rest in turn, and allow air to follow the sewage into the land. In soil, however, as we have said, the particles are so close that it is impossible to allow the solid matter to flow on to it. Hence the idea of a filter sufficiently open to take the sewage, after the gruset matter has been strained from it, and which will at the same time form a home for these organisms. Coke breeze has been found to serve best as a filtering media. In order to ensure the presence of oxygen, the filter is charged with sewage, and after a short rest of an hour or two allowed to drain off, when the oxygen of the atmosphere is drawn into the filter, and the

LIFE OF THE ORGANISM

maintained. Mr. Dibdin has been carrying out experiments in this direction both at the northern outfall at London and at Sutton, in Surrey. At London, from September, 1893, to November, 1896, 500 million gallons of sewage have been treated on a one-acre coke breeze filter, with the result that 2232 tons of sludge of 90 per cent. moisture have been entirely destroyed, sand and other detritus were carried into the body of the coke, and had no appearance of choking the filter. At Sutton, in Surrey, the Urban District Council has laid down, and has working satisfactorily, bacteria filters. The first filter laid down here was charged with burnt ballast, and received in 76 days, 2,216,000 gallons, equal to an average of 29,165 gallons per day, or 773,000 gallons per acre per day, rest included. The results were entirely satisfactory, the solid matters being reduced by 95 per cent., and by further treatment in a coke breeze filter by 99.6 per cent., and a total reduction of organic matter by 86.5 per cent. The amount of dry sludge which disappeared during these 76 days was equal to 77 tons. At the end of the above-

named period the task continued to work with undiminished success. Since the Sutton people have extended their filter-beds, deputations every week from other districts are viewing their successful working. That the biological system of sewage treatment is a step in the right direction cannot be doubted, and that its adoption will be a boon to many places where suitable land cannot be obtained is certain. On the other hand, where land is cheap and easily obtained, and of a suitable character for sewage treatment, and where market gardening may be furthered by sewage irrigation, it is a question whether the older system has not still the preference. In such cases a combination of the bacteria sludge destroying filter tanks and land irrigation on the intermittent system, appears to offer equally good and more profitable results.

THE Mersey Docks and Harbour Board Bill, which embraces a great scheme of dock extension, involving an outlay of £3,562,000, has been passed as an unopposed measure by the Earl of Morley, Chairman of Committees of the House of Lords. The scheme contemplates the construction, on the southern portion of the Dock Board's estate at Liverpool, of four new branch docks and two new graving docks, with a new deep water entrance to the existing Brunswick Docks, and, on the northern portion, two new branch docks and one graving dock, with improved entrances. The new docks are to be of sufficient length, breadth, and depth to accommodate the largest class of vessels building. Ten years are given for the completion of the works, but it is the intention of the Board to carry them out at the earliest possible moment.

The tender of Mr. Thomas Bell, of Market Weighton, York, has been accepted for the carrying out of the proposed works of water supply for the County Lunatic Asylum at Morpeth, per plans prepared by Messrs. D. Balfour and Son, civil engineers, Newcastle-on-Tyne. The scheme provides for the conveying of water in 6in. and 5in. mains from a copious spring at Doe Hill, in the Wotton Shields district, to the Asylum, a distance of seven miles. The mains will be of cast-iron, tested in the trenches after being jointed to ensure watertightness, and the necessary air, scour, and stop valves will be affixed. The spring can provide the present number of inmates with over 100 gallons per head per day, being greatly in excess of the forty gallons required by the Lunacy Commissioners. The spring, which is subject to very slight seasonal variation, will be enclosed by cast-iron cylinders, from which the water will flow to a covered storage reservoir. The water has been examined both chemically and bacteriologically, and found to be of excellent quality.

Surveying and Sanitary Notes.

An inquiry is being made by a committee, appointed by the Home Secretary, into the extent to which water gas and other gases containing a large proportion of carbon non-oxide are being manufactured and used for heating, lighting, and other purposes, and the dangers which may attend such manufacture and use.

THE new sea wall at Scarborough has been constructed as far south as what is locally known as Coffee Pot Rock, a distance of about 400 yards from the existing Royal Albert Drive, and there are already manufactured blocks for 250 additional yards. The date fixed for the completion of the contract is August, 1899.

THE Committee of the House of Commons have given their decision in the case of the opposition of the Great Western Railway Company to the Metropolitan Railway Bill, and also in regard to the opposition of the local vestries and the London County Council. As to the granting of powers to work the line by electricity, the Committee found the preamble proved, subject to the introduction of a clause protecting the interests of the Great Western Company by arbitration. Pending the introduction of electricity, powers to open new blow-holes for ventilating are conferred for five years.

PIPES for the carriage of water have from time to time been made of all kinds of materials, from the hollowed tree trunks which are occasionally unearthed in our cities to the paper contrivances soaked in pitch which have been recommended as efficient in more modern times. A Frenchman has recently invented a novel form of pipe for drainage and other purposes. A trench is dug in the ground where the pipe is required to be laid, and is partly filled in with good cement. Upon this soft substratum is laid a rubber tube covered with canvas, and tightly inflated with air. The trench is now filled up with cement, so that the tube is completely covered with an inch or more of the plastic material. As soon as the cement sets, the air is let out of the tube, and it is easily extracted from the pipe of which it for a time formed the core. The tube can then be again inflated to serve for a fresh section of the pipe, which can be as much as six inches in diameter if required. It is said that a cement pipe of this thickness has been successfully laid by the new method at a cost of about one shilling per yard.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
April 16	Windsor—Alterations to Laundry	Guardians	Surveyor's Office, 17, Park-street, Windsor.
16	Cairo, Egypt—Supply of Cement	Public Works Department	Inspector-Genl. of Irrigation, Public Works Ministry, Cairo.
16	Broughton, Lancs.—Erection of Police Station	Standing Joint Committee	H. Littler, 68, Fishergate, Preston.
16	Brighton—Erection of Hospital Quarters	Committee of Management	F. T. Cawthorn, 170, North-street, Brighton.
16	Farnedale, Wales—Erection of Club Premises	Conservative Club	A. O. Evans, Post Office-chambers, Pontypridd.
16	Lancaster—Rebuilding Bank	Liverpool Bank Ltd.	J. F. Curwen, 26, Highgate, Kendal.
16	Limerick—Erection of Two Houses		29, George-street, Limerick.
16	South Fernby, Yorks.—Erection of House and Stables	H. Brearley	H. B. Thorp, Architect, Goole.
18	New Brompton—Erection of Bakery, Flour Store, & Shop	New Brompton Economical Society	E. J. Hammond, 111, High-street, New Brompton, Kent.
18	Walsall—Alterations to Cottages, &c.	School Board	Bailey and McConnell, Bridge-street, Walsall.
18	Dewsbury—Extension of Schools		J. L. Fox, Architect, Bond-street, Dewsbury.
18	London, S.E.—Electric Lighting Station	St. Mary's Vestry, Newington	Kincaid, Waller, & Manville, 29, Great George-street, S.W.
18	Luton—Erection of Vestry and Organ Chamber		Rev. T. Bulman, 8, Union-street, Luton.
18	Newport, Mon.—Erection of Board-room and Offices	Guardians	B. Lawrence and Son, Architects, Dock-street, Newport.
19	Ipswich—Erection of Class-room	School Board	T. W. Cotman, Northgate-street, Ipswich.
19	London, N.W.—Extension of Generating Station	St. Pancras Vestry	Chief Clerk, Electricity Department, 57, Pratt-street, N.W.
19	New Tredegar, Mon.—Erection of Twenty-two Houses	Working Men's Building Club	G. Kenshole, Architect, Duffryn House, Ystrad Mynach.
19	York—Erection of Laundry Buildings, &c.	Workhouse Guardians	Penty and Penty, Architects, Lendal-chambers, York.
19	Sunderland—Post and Inland Revenue Office	Commissioners of H.M. Works	Offices, 12, Whitehall-place, S.W.
20	Halifax—Erection of Three Dwelling-houses, &c.		M. Hall, 29, Northgate, Halifax.
20	Shildon—Erection of Six Houses & Thirty-seven Cottages	North-Eastern Railway Co.	W. Bell, the Company's Architect, York.
20	Ulverston—Alteration, &c., of Boiler-house	Guardians	J. W. Grundy and Son, Architects, Ulverston.
21	Manchester—Retaining Wall	Parks Committee	City Surveyor, Town Hall, Manchester.
21	Wallasey, Cheshire—Engine and Boiler-house	Urban District Council	J. H. Crowther, Engineer, Great Float, near Birkenhead.
22	Halifax—Erection of Shops, &c.		M. Hall, 29, Northgate, Halifax.
22	Sheffield—Erection of Fire and Police Station	Watch Committee	J. Norton, Alliance-chambers, George-street, Sheffield.
22	Rosslynlee, near Edinburgh—Additions to Asylum, &c.	District Lunacy Board	Dr. R. Anderson, 16, Rutland-square, Edinburgh.
27	Norton Woodsents, near Sheffield—Erection of Lock-up	Standing Joint Committee	J. S. Story, Surveyor, Offices, St. Mary's Gate, Derby.
28	Edgmond, Salop—Erection of Agricultural College	Governors, Harper Adam Foundation	H. Teather, Architect, Andrew's-bldgs., Queen-st., Cardiff.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
July 24	Belem, Para, Brazil—Cattle Pens, Abbatoir, &c.	Ecuadorian Government	Brazilian Legation, London.
Aug. 31	Guyaquil—Construction of Custom House	Town and County Bank	Commercial Department, Foreign Office, S.W.
No date.	Craigelachie, Scotland—Erection of Bank, &c. ....	.....	Dunn and Findlay, 35, Frederick-street, Edinburgh.
"	Chieveley, near Newbury—Church Repairs, &c.	J. Stanley	Rev. J. T. Stead, The Manse, Bartholomew-st., Newbury.
"	Denton, Lancs.—Erection of Four Houses ... ..	.....	J. Stanley, 26, Market-street, Denton.
"	Glossop—Erection of Stone Buildings ... ..	.....	Olive and Partington, Turn Lee Mills, Glossop.
"	Hebburn-on-Tyne—Erection of Shops	R. & W. Hawthorn, Leslie, & Co., Ltd.	Company's Office, Hebburn Shipyard, Hebburn-on-Tyne.
"	King's Lynn—Rebuilding Business Premises	Jermyn and Sons	H. J. Green, Architect, Tuesday Market-place, King's Lynn.
"	Llanbadoc, Mon.—Alterations, &c., to Inn	Phillips and Sons, Limited... ..	Swalwell and Creighton, Steam Packet-chambers, Dock-street, Newport.
"	New Cleethorpes—Church Institute ... ..	.....	Boreham and Morton, Quantity Surveyors, Sunderland.
"	Nottingham—Erection of Semi-detached Villas ... ..	.....	F. H. Collyer, Architect, South-parade, Nottingham.
"	Thorpe Hesley, Yorks.—Erection of 2 Houses and Shops ... ..	.....	H. Smith, Architect, Thorpe Hesley.
ENGINEERING—			
April 16	Farnham—Sundry Works	Managers School District	A. Ansell, Surveyor, 21, Buckingham-street, Strand.
" 18	Belfast—Engines and Dynamos (Two Contracts)	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 18	Ilkley—Pipelining	District Council	W. B. Woodhead & Son, Engineer, 18, Exchange, Bradford.
" 19	Accrington—Electrical Plant	Corporation	J. N. Shoolbred, C.E., 47, Victoria-street, London, S.W.
" 19	Berrow, Burnham, Somerset—Water Mains	Berrow Water Co. Ltd.	W. J. Press, Engineer, Town Hall, Burnham, Somerset.
" 19	Hull—Steel Boilers	Waterworks Committee	F. J. Bancroft, Engineer, Town Hall, Hull.
" 19	Mansfield Woodhouse, Notts.—Water Supply Works	Urban District Council	G. and F. W. Hodson, Engineers, Loughborough.
" 20	Glasgow—Ballachulish Railway Extension	Callender and Oban Railway Co.	Sir J. W. Barry, 21, Delahay-street, Westminster.
" 20	Salford—Overflows	River Conservancy Board	Borough Engineer, Town Hall, Salford.
" 21	Urringford, Ireland—Pump	Guardians	J. Prout, Fennor Cross, Urringford.
" 21	Boston, Lincs.—Provision of Ship	Harbour Commissioners	W. H. Wheeler, Market-place, Boston, Lincs.
" 21	Egremont, Cheshire—Boring Work	Wallasey Urban District Council	J. H. Crowther, Great Plot, near Birkenhead.
" 21	Iford—Settling Tanks, &c.	Urban District Council	J. Taylor, Sons, and Santo Crimp, 27, Great George-st., S.W.
" 23	Edinburgh—Installation of Electric Light	Lucan Board	Prof. Bailey, Heriot-Watt College, Chambers-st., Edinburgh.
" 25	Bury—Boiler	Sewage Committee	J. Cartwright, Engineer, Corporation Offices, Bury.
" 25	Sophia, Bulgaria—Supply of Drinking Water	Municipality	Commercial Department, Foreign Office, S.W.
" 26	Maidenhead to Windsor—Dredging	Thames Conservancy	Engineer at Offices, Victoria Embankment, E.C.
" 26	Petworth, Sussex—Engine	District Council	A. F. Mant, Clerk, Petworth.
" 26	Salford—Bridge Works	Parks Committee	Borough Engineer, Town Hall, Salford.
" 27	Stranorlar, Donegal—Railway Extension	Donegal Railway Co.	J. Barton, Engineer, Exchange-buildings, Dundalk.
" 29	Carnarvon—Construction of Bridge	Corporation	Wawn, Anglesey Inn, Carnarvon.
" 30	Sheffield—Steel Bridge	Corporation	C. F. Wike, Town Hall, Sheffield.
" 30	Ball's Bridge, Co. Dublin—Widening Bridge	Pembroke Township Commissioners	The Secretary, Town Hall, Ball's Bridge, Co. Dublin.
" 30	Withington, Lancs.—Hydraulic Plant	District Council	A. H. Mountain, Surveyor, Town Hall, Withington.
" 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
No date.	York—Refuse Destructor	Corporation	A. Creer, City Engineer, Guildhall, York.
IRON AND STEEL—			
April 18	Bermondsey, S.E.—Pails	Vestry, St. Mary Magdalen, Bermondsey	F. Ryall, Clerk, Town Hall, Spa-road, S.E.
" 18	Glasgow—Various Stores	Corporation Tramways	J. Young, General Manager, 88, Renfield-street, Glasgow.
" 18	Beckenham—Cast-iron Sewer Ventilating Columns, &c.	Urban District Council	J. A. Angell, Council Offices, Beckenham.
" 18	Hornsey, N.—Wrought-iron Fencing, &c.	Urban District Council	E. J. Lovegrove, Council Offices, Southwood-lane, Highgate, N.
" 19	Wigan—Supply of Cast-iron Mains, &c.	Gas and Electric Lighting Committee	J. Tummins, Engineer, Borough Gasworks, Wigan.
" 19	Berrow, Burnham, Somerset—Pipes	Berrow Water Co. Limited	W. J. Press, Engineer, Town Hall, Burnham.
" 20	London, E.C.—Rails	East Indian Railway Co.	A. P. Dunstan, Secretary, Nicholas-lane, London, E.C.
" 20	Enfield—Pipes	District Council	R. Collins, Court House, Enfield.
" 27	Stapleford and Shardlow—Pipes	District Council	W. H. Radford, Engineer, Angel Row, Nottingham.
PAINTING AND PLUMBING—			
April 18	Wells—External Painting, Asylum	Visiting Committee	Clerk of Works, Somerset & Bath Lunatic Asylum, Wells.
" 18	Margate—Painting Hospital	Isle of Thanet Joint Hospit. Committee	G. Foord-Kelcey, 2, Hawley-street, Margate.
" 21	Falkirk—Painting Lavatory	Parish Council	A. and C. Black, Architects, Falkirk.
" 21	Glasgow—Painting Bridge	Corporation	Office of Public Works, City Chambers, Glasgow.
No date.	Bedford—Painting Lodges ... ..	.....	Borough Surveyor's Office, Bedford.
ROADS—			
April 16	Hambleton, Guildford—Supply of Materials	District Council	G. Lintott, Surveyor, Cranleigh.
" 16	Wantage—Supply of Stones	District Council	The District Surveyor, East Isley.
" 16	Pocklington, Yorks.—Supply of Slag, &c.	Rural District Council	T. Robson, Clerk, Pocklington.
" 17	Lutterworth—Supply of Granite	Rural District Council	J. C. Coates, Surveyor, Bitteswell, Lutterworth.
" 18	Guildford—Road Works	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
" 18	Hornsey, N.—Widening, Kerbing, Paving, &c.	Urban District Council	E. J. Lovegrove, Council Offices, Southwood-lane, Highgate.
" 18	Blackburn—Street Works	Highway Committee	W. Stubbs, Engineer, Municipal Offices, Blackburn.
" 18	Gloucester—Supply of Stone	Highway Board	M. Weaver, Surveyor, Denmark Road, Gloucester.
" 18	Ham, Surrey—Supply of Materials	District Council	W. Warner, Surveyor, Ham Common.
" 18	Riccall, Selby—Supply of Whinstone	District Council	E. Townend, Clerk, 1, Abbey-place, Selby.
" 18	Rochford, Essex—Supply of Materials	District Council	F. Gregson, Clerk, Southend-on-Sea.
" 18	Rothwell, Northants—Road Works	District Council	W. T. Pearson, Surveyor, Market House, Rothwell.
" 19	London, E.C.—Asphalte Paving Works	Streets Committee of Corporation	Engineer to Corporation, Guildhall, London.
" 19	Acton—Paving and Making-up Roads, &c.	District Council	D. J. Ebbetts, 242, High-street, Acton, W.
" 20	Sutherland—Road Works	County Council	A. Argo, County Offices, Golspie, N.B.
" 21	Ashford, Kent—Supply of Granite	District Council	Wm. Terrill, Surveyor, North-street, Ashford.
" 21	Lichfield, Staffs.—Supply of Granite	District Council	R. J. Knapman, Surveyor, London-road, Lichfield.
" 23	Stratford-upon-Avon—Supply of Road Metal	Town Council	R. Dixon, Surveyor, Municipal Offices, Stratford-upon-Avon.
" 23	Hoylake, Cheshire, Supply of Materials, &c.	Urban District Council	T. Foster, Surveyor, District Council Offices, Hoylake.
" 25	Sutherland—Road Works	County Council	A. Argo, County Offices, Golspie, N.B.
" 27	Leyland, Lancs.—Carting Road Material	Hundred Highway Board	J. Whitfield, 10, High-street, Chorley.
" 27	London, E.C.—Paving	Vestry of St. Luke	The Surveyor, Vestry Hall, City-road, E.C.
SANITARY—			
April 16	Sunderland—Reconstruction of Drainage	Borough Asylum	J. Little, Viaduct-chambers, Carlisle.
" 18	Blaby, Leicestershire—Scavenging	District Council	B. A. Shires, Alliance-chbrs, Municipal Offices, Leicester.
" 18	Knottingley, Yorks.—Sewerage Works	District Council	J. Richardson, Engineer, Central Bank-chambers, Leeds.
" 18	Methley, Yorks.—Construction of Sewers	Urban District Council	J. Richardson, J.P., Methley Park, Leeds.
" 20	Fulham, S.W.—Pipe Sewer	Vestry	C. Botterill, Town Hall, Walham Green, S.W.
" 21	Iford—Sewerage Disposal Works	Urban District Council	Taylor, Sons, and Santo Crimp, 27, Great George-st., S.W.
TIMBER—			
No date.	Manorhamilton, Ireland—Sleepers	Sago, Leitrim, & Northern Counties Ry. Co.	R. E. Davis, Secretary, Manorhamilton, Ireland.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
April 30	Cricklade and Wootton Bassett—Water Supply Scheme	£21, £10 10s.	Rural District Council.
May 1	Belper—Sewage Disposal Schemes	£52 10s., £26 5s.	Urban District Council.
" 25	Tipton, Staffs.—Laying-out Park	£25, £10	Urban District Council.
" 28	Trowbridge—Technical School	£40, £30, £20	The Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major F. L. Anderson, R.E., South Camp, Aldershot.
June 24	East Ham—Offices, Fire Station, and Public Baths	£105, £52 10s.	Urban District Council.
July 1	San Francisco Bay—Designs for University Buildings... ..	£10,000 (divided in two competitions)	Trustees of the Phebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.

FURNITURE: PAST AND PRESENT.*

By W. ROLAND PECK, F.A.I., F.S.I.

IN using the word "Furniture," I propose to confine myself almost entirely to what is generally known as household furniture, as time would not allow of my dealing with it in its full meaning—that is, everything that is moveable. Our knowledge of furniture in the far away past is very slight. From sacred history we gather unmistakable proofs that many centuries before the Christian era, when the precise instructions were given for the building of the Tabernacle, these instructions were intended for craftsmen who must have had considerable experience in the working of woods, marbles, and metals. It must be particularly gratifying to those of my brother Masons who take an interest in this subject, to know that our first Master, installed nearly three thousand years ago, did so much for decorative fitting and furniture by gathering together for the building of the Temple

THE MOST FAMOUS ARTIFICERS

of the then-known world, and the effect of this enormous grouping together of the best workers, all anxious for the perfect fulfilment of this magnificent conception—undisturbed by strikes or other labour troubles—all working together in harmony towards one goal, must have been enormously beneficial in improving style and workmanship, and some of the finest existing examples of Art probably owe their birth to the influence and genius of our first worshipful Master. From the antique bas-reliefs in our National Museum, proof is given that carved wood chairs and couches of great beauty of design and clever workmanship were in everyday use 600 years B.C. In a daily paper a few days ago I read that what is doubtless the

OLDEST AND MOST VENERABLE PIECE

of furniture in existence was not long since deposited in the British Museum. It is the chair of Queen Hatasu, who reigned in the Nile Valley some sixteen hundred years before Christ, and twenty-nine years before Moses. This now dilapidated object seems to be of lignum vitæ. The carving of the front legs is elaborately inlaid with gold, and that of the back with silver. Again, in the Old Testament, constant reference is made to tables and beds. In the Book of Kings we read the beautiful story of the loving care of the Shunammite woman who saw that Elisha was a man of God, and said to her husband: "Let us make a little chamber on the wall, and let us set for him there a bed, and a table and a stool and a candlestick." It was as a reward for this care that Elisha promised that her long longed-for child should be born. Interesting as it would be to trace the development of

ASSYRIAN, ROMAN, AND GREEK FURNITURE,

I must in this short paper speak principally on British furniture. The early Britons, who led a wandering life, appear to have possessed little or nothing that we should term "furniture." These Nomads probably obtained their first idea of furniture from the chests in which they carried their valuables when away on hunting or fighting expeditions. These were used as seats, and as they were constantly in view they received various ornamentations, and as the people became less Nomadic these were followed by stools and rough tables. There is direct evidence in the manuscripts in the British Museum that as early as the eighth century an Anglo-Saxon chieftain possessed a house built entirely on one floor, and containing chests, tables, stools, and bedsteads. The latter, although little better than large boxes, with bags of straw placed therein, were the luxuries of the great, and not, until some centuries later did the ordinary Briton sleep on anything more luxurious than the earth-trodden floor. So far as history shows, Agricola, one of the earliest of the Roman governors, encouraged the Britons to accustom themselves to a slightly more pleasant mode

of living, and the conquered race slowly but surely learnt the use of mortar, cement, and the different tools used in building; and, as their huts or hovels became more comfortable, more articles of furniture were made and used. King Alfred, by his monastic schools and by strictly enforcing one of his edicts, to the effect that each priest should increase his knowledge of some handicraft, did much to promote manufactures, and greatly added to the comfort of the domestic life of his people. Up to the time of the Norman invasion, however, everything was very primitive. The male members of the family slept in the large hall used by day as the sitting or eating room, the mistress of the household, if of sufficient wealth and position, occupying a curtained recess with one of the box bedsteads I have referred to. The windows were for ventilation rather than for light. The fire usually burnt in the centre of the apartment; the first mention of

A FIREPLACE AND CHIMNEY

dates from close upon the twelfth century. Tables were formed from planks of wood laid on trestles: this is proved by manuscripts showing that after the dinner (with meat usually served on the spits upon which it had been cooked) the tables were cleared away, and the jesters, minstrels, and gleemen performed before our Anglo-Saxon forefathers. A less comfortable state of living followed the Norman occupation. Houses which, with few exceptions, had up to this period consisted of one floor only had a second story added; the awful four-poster bedstead—which is not yet, alas! quite a thing of the past—was introduced; ladies' dresses were richer in design and workmanship; and the Saxon "Worth" became and has remained a power in the land. At this period we learn for certain that feather beds were used, as one of the penances enforced by Holy Church for disobedience was not to enter a feather bed. In the thirteenth century wood panelling of walls of private dwelling houses is first mentioned. In 1236 King Henry III. issued a Royal precept as follows: "The

KING'S GREAT CHAMBER AT WESTMINSTER,

and the King's little wardrobe therein be painted a green colour like a curtain." Later in the thirteenth and during the fourteenth century Mediæval Art was approaching its finest period. Gothic Architecture had well set in, and it is important to note that at this time the furniture followed the fashion of the stone carving, and it is probable that the same hands which fashioned the cathedrals, monasteries, and mansions, also drew the designs for furniture, as the Church clearly secured the choicest examples of wood carving. The Coronation Chair now in Westminster Abbey was made for King Edward the First about thirteen hundred. "Penshurst Place," in Kent, the historic home of the Sydneys, is said by antiquarians to be the finest and truest example of what a rich gentleman's country house was in the middle of the fourteenth century, and, owing to the veneration care of the owners of this lovely old place, many of the original fittings have been preserved and can be seen to this very day. Jumping at once to

THE TUDOR PERIOD,

we see the doom of the old feudal castle, and in its place we have the high-roofed, gabled, and oriel windowed mansion. Skelton, writing of that time, says:—"Building royallie their Mansions curioslie—with Turrets and with Towers stretching to the starres." At this time we find the magnificent timber roofs; fine examples are to be seen in the great hall of Hampton Court Palace, in the Colleges of Oxford, and in Westminster Hall. About this time the custom of the head of the house of taking meals in the large hall with his retainers and dependents was partially broken up, and the "parlor" was first mentioned. Sir Henry Wootton, who was our ambassador to Venice, and who gave the well-known definition of an ambassador's calling as "an honest man sent abroad to lie for his country's good," wrote about 1600:—"Every man's proper mansion-house, and home being the theatre of his

hospitality, the comfortable part of his own life, a kind of private principedom, may well deserve to be delightfully adorned." Furniture to suit this new mode of living became necessary and was designed and made. In our South Kensington Museum there is a remarkable

CABINET OF THE SIXTEENTH CENTURY

obviously intended for use in a small apartment. About 1550 the taste for tapestry wall hangings revived, and the finest specimens in the world were produced in the sixteenth and seventeenth centuries. James I., in 1619, contributed £2000 towards the cost of establishing a manufactory of tapestry at Mortlake. In Elizabeth's reign furniture became more and more luxurious, and the carving more ornate and beautiful. This lively queen found time in the intervals of her love-making to very considerably aid the advance of taste and comfort in domestic furniture, and, reaping as she did, the advantages which accrued from the encouragement to foreign artificers given by Henry VIII., it is believed that greater strides were made in her reign than in any similar period of English history. Certainly the

MANY MAGNIFICENT MANSIONS

which were erected or designed during her life show that an immense advance had been made in the comfort of living. Two inventories belonging to this period are in existence, which picture for us exactly the contents of the principal rooms in two wealthy homes. The first, which I quote from Lichfield's book, refers to the parlour of Alderman Glasseor, of Chester, and reads as follows: "A drawing table of joyned work, with a frame, valued at forty shillings" (equal to £20 of our present money). The word "joyned" here shows that this table was of superior make, probably by the Gillow or Holland of that period, as the ordinary table in a gentleman's house at that time was usually made by plain boards being laid on trestles.

"Two forms covered with Turkey werke—a little side table upon a frame.

"A pair of virginals with the frame (valued at that time at 30s.)

"Six joyned stools covered with nedle werke, 15s.

"Six other joyned stools.

"One chere of nedle werke.

"Two little fote stools.

"One long carpet of Turkey werke." (I might, perhaps, mention here that carpet at this time meant table cover, as carpets as we know them were not used, the floors being always laid with straw or rushes.)

"One cupboard carpet of the same werke, 10s." (This we should describe to-day as a sideboard cloth.)

"Sixe guysshens of Turkeye.

"Sixe guysshens of tapestree.

"Eight pictures (valued at 40s.), Maps, and a pedigree of Earl Leicester in joyned frame."

This worthy Alderman was apparently a man of taste and culture, for I find he had not only casting-bottles of silver for sprinkling perfumes after dinner, but, to his glory, I find the inventory also contains a list of books. The second inventory describes the contents of the great chamber of Hengrave Hall, in Suffolk, where I may, perhaps, be pardoned for the egotism of mentioning that I had the privilege of dispersing by auction in August last, about £13,000 worth of old furniture and works of Art.

This inventory reads:—

"Long carpet of English werke.

"Long table.

"Square table" (which, by-the-bye, is the first time I see a square table mentioned in any old records.)

"Two cupboards" (these, doubtless, were the forerunners of sideboards and buffets of later times.)

"24 stools covered with carpet werke.

"6 stools covered with crimson velvet.

"2 greate chairs.

"2 scroll chairs.

"4 cushions.

"6 curtains.

"7-fold screen.

"4 branches of copper for lights.

* A paper read before the Auctioneers Institute of the United Kingdom.

"2 shovels, tongs and fire-fork, and walls hung with tapestry."

Before leaving the subject of inventories, may I appeal for more care in their preparation? We are not, I am sorry to say, improving as a body in this respect. I speak with some experience, as it is now nearly thirty-two years since I went with my uncle, the late Mr. Samuel B. Clark, to write down his description of the contents of a house in Gloucester Place, Portman Square. In those days we combined the business of a cabinet-maker and house agent. Mr. Clark was a cabinet-maker in the true sense of the term, and, as he was a designer of considerable skill, I learned under his able care to love good furniture, and despise bad taste and shoddy manufacture. The tendency of the present age is towards too much haste, hence we find in everyday inventories old furniture—even when it has distinguishing characteristics—all termed alike, "Chippendale," all foreign carpets called "Oriental," Japanese ware set down as Chinese, and *vice versa*. Elm is often called oak; rosewood becomes mahogany, and other glaring mistakes, too numerous for me to name, are made. If I can persuade one of our students to spend but one evening each week in our museums in the fascinating pastime of

STUDYING OLD FURNITURE,

this paper will have well served its purpose. Of ludicrous mistakes in inventories which have come under my notice, I could fill a book. A few I will mention, and then pass on. Two were both made by the same man, a genial, kind-hearted fellow, well known to my old colleagues. He made an inventory of a house near Weybridge, and I found on checking it, at the commencement of a furnished tenancy, that a beautiful picture of St. John was described as "boy with straw hat!" It is somewhat surprising he mistook the nimbus for a chapeau, for in an inventory he made of No. 3, Portland Place, at that time occupied by Mr. Edmund Yates, he described in the drawing-room there "a finely-carved marble mantel, supported by life-sized figures of angels." I well remember Mr. Yates asking me where he obtained his information as to the correct size of the inhabitants of Paradise. The poor old chap died long since, and so has been able to verify his measurements, and, I hope, for the credit of my old office, he found he was quite correct. Another instance of misplaced enthusiasm occurred in an inventory I checked some years ago of a house near Carlisle, where the agent gave the following description: "A shaped deal dressing-table with pink calico falls, covered with figured muslin, adorned with silk bows, and other elegant concomitants." In 1685 the persecution of the French Protestants after the revocation of the Edict of Nantes drove thousands of skilled workmen into England. These workmen added very materially to the

DECORATIVE ARTS OF THIS COUNTRY.

About the same time, marqueterie furniture, named after its inventor Marquet, first made its appearance in England. André Boule's furniture was also imported, and some of his choicest work has, by the Wallace bequest, lately become national property. This almost priceless collection was nearly lost to us by Government red-tapeism. Happily, however, the difficulties were overcome, and Britain has secured these Art treasures in their entirety. Later on, the carved and gilded furniture of Louis Quatorze, and the exquisitely painted furniture of Vernis Martin, were brought to this country. In the reign of William and Mary, I think we can first trace the influence of Oriental Art in the making of English furniture; certainly a great change took place in our style. Our trade with Holland, which was great in this reign, brought us in contact with the pottery and lacquer-work imported by Dutch merchants from China and Japan. Wood carving was also revived, and brought to a high state of perfection by

GRINLING GIBBONS AND HIS PUPILS.

His finest carving is to be seen at Chatsworth, Whitehall Palace, Trinity College, Mercers' Hall, and St. James's Church, Piccadilly.

Mahogany wood, although used for repairing ships as early as the time of James I., was not employed for domestic furniture until the eighteenth century. Once used, however, it rapidly became the favourite wood for cabinet making; the natural beauty and the fine polish it took fully compensated for its hardness as compared with other woods used up to this period. Satinwood from the East Indies also came into favour, and was the favourite ground work for the lovely painting of Angelica Kauffmann and Cipriani. Time has compelled me, very reluctantly, to strike out some references to specimen pieces of furniture which are now to be seen in England showing how we stood up at the time when Chippendale appeared on the scene. His advent led to a thorough and distinct change in the design of English decorative furniture. I have read a great deal of the criticism on Chippendale, but, admitting for the moment all that can be said against some of his styles, I maintain that we owe more to him for the beauty of household furniture than to any other designer that has ever lived. I prove this by the fact that he produced his great work in 1754, and to-day the highest and best English work is

BASED ON HIS MODELS.

Considering what we, as a nation, owe to Chippendale, it is strange to me that no monument to him exists. Very second-rate people, and "Mouthing patriots with itching palms," as the great historian says, have had their monuments, but nothing has been done for Chippendale—but, perhaps, the examples of his work in every cultured home serve as a better memorial than anything in stone or marble. Chippendale was largely influenced by French and Chinese styles, but he was not a mere copyist, and comparing the proved and authentic pieces of his furniture with similar articles made by his contemporaries, the king of designers stands out strong and secure in his overwhelming genius. That Chippendale was also influenced by the Dutch was clearly proved to me a few days ago when, by the great courtesy of Mr. D. L. Isaacs, I was allowed to inspect his rare and very valuable collection. Mr. Isaacs showed me an antique upright clock in a case darkened by age, and where the carving was the most characteristic piece of Chippendale I have seen—had it not been that the case was in old walnut-wood the keenest judge would have certainly catalogued it as a genuine Chippendale. One point we should not forget, that in all his exquisite tracery and delicacy of design, Chippendale never lost sight of the fact that furniture was for use as well as for ornament: the solidity of his workmanship and his superior finish are examples for all time. Of the lesser lights which illumined what is known as the Chippendale period, the greatest were the Brothers Adam, who designed furniture in harmony with their artistic interiors, most of which furniture was made by the old firms of Gillow and Dowbiggin.

(To be continued.)

From designs by Mr. Frank E. Smee, of 12, West Smithfield, two class-rooms are about to be added to the Leigh-on-Sea Board Schools. The tender of Messrs. Thorpe and Son, builders, Leigh, has been accepted, the amount being £1619.

THE contractors (Messrs. Price and Wills) have made such satisfactory progress with the loop line at Porthkerry, on the Vale of Glamorgan Railway, to take the place of the defective viaduct, that the work will shortly be completed.

THE efforts of the Scarborough Corporation to get the heavy gun battery removed from the Castle Yard at the summit of the famous Castle Hill, Scarborough, to land near the Artillery barracks on Burniston Road, have at last been successful. The Corporation are constructing a drive round the foot of the Castle Hill at a cost of £80,000. Unless the battery had been removed it would have been necessary when firing was taking place to close the drive to the public.

GREAT ART WORKERS OF THE CENTURIES.

BERNARD PALISSY, MODELLER IN PORCELAIN.

MAN has always loved to work in clay, and very beautiful have been the results of this appetency. The great early Accadian folk, who inhabited the plains of Chaldea, raised their immense cities of clay—bricks burnt or unburnt—and in their later civilisation made their books of the same substances, hundreds of which (in the form of tablets) were brought from Assyria by Sir A. H. Layard and M. Botta, and now enrich the galleries of the Louvre and the British Museum. And other nations were as ready to manipulate clay. The tombs at Bein-Hassan, in Egypt, which date from about B.C. 2000, contain pictures of various Egyptian trades and industries, including a pottery in which appears a potter's wheel for forming cups. The Egyptians, therefore, made a soft pottery in forms at a very early period. The Egyptians also had a knowledge from a very early period of the art of enamelling pottery. Articles enamelled in blue fifteen centuries B.C. are as bright and perfect to-day as articles of modern production. A knowledge of the art of working in clay was also possessed by the Phœnicians. Of their art we had but little knowledge until the discoveries made by General di Cesnola at Cyprus. The Phœnicians appear to have possessed the art previous to 1500 B.C., and from them the art travelled to Greece. Some of the

GRECIAN POTTERY,

especially their painted vases, are of the very highest order of merit. The Romans, always practical, appear to have valued pottery rather for its useful than its ornamental qualities, and displayed no very great skill or artistic ability in its manufacture. Western Europe appears to have owed its knowledge of the potter's art to the Saracens, who brought it to Spain, whence it made its way to Italy, Germany, and France. In the first named country (Italy) it flourished exceedingly during the fifteenth century, when the celebrated "Majolica" was fabricated. In Germany progress was not so great, while in France several predecessors cleared the way for the work of the great man to whose career this brief article is devoted. The origin of pottery in France appears to have been at a small establishment at Oiron, set up by Madame Hélène de Hauges-Genlis, widow of Arthur Gouffier, and continued after her death by her son, Claude Gouffier. She was a lady of high rank, and it is probable that the pieces of ware produced (which were but few in number) were rather intended as presents than for sale. They were of thin ware, and highly glazed. The decorations were produced by graving outline patterns in the clay, and filling in the designs with coloured clay. This ware is known as "Henri Deux ware" or "Faïence d'Oiron," and is very rare. At present only 53 specimens are extant, of which 26 are owned by France, 26 by England, and one only by Russia. The next French potter, in chronological order, was Palissy, of whom this sketch treats, and a very typical example of whose art is to be found, in the shape of a "reptile dish," in the Soltikoff collection, which was dispersed some few years since. The natural forms, leaves excepted, are very carefully moulded and true to Nature. The fossil shells are the tertiary shells of the Paris basin, the fishes are those of the Seine, and the reptiles and plants those of the neighbourhood of Paris. The moulds were, in all probability, formed from living specimens. Another fine specimen is also a "reptile dish" from the Marryatt collection. The precise date of the birth of this great artist is not exactly known. Some authorities give it as 1509, others as 1510, and the place of his birth is also involved in some security, but it is generally supposed to have been in one of the forest tracts which abounded at that time in the province of Périgord. His father is supposed to have been

glass painter, certainly he was not a potter, or Palissy himself says that when he commenced.

HIS FIRST EXPERIMENTS IN POTTERY

That he "had never seen earth baked," and he was brought up to the business of glass painter and worker generally in glass. The father of Palissy was probably of noble family, for all processes connected with the shaping and colouring of glass was considered an occupation which a gentleman might follow without losing caste. There were two or three such trades, and they were jealously guarded from outsiders. Parents taught them, who were not likely to communicate their secrets to strangers. In his childhood Bernard Palissy was poor, and probably received no more than a peasant's education, except that he learned to draw and paint on glass. Palissy left his father's house when about eighteen years of age, and wandered over France; at twenty-nine he married and settled down at Saintes. Here he was shown an elegant cup of Italian manufacture—"An earthen cup turned and enamelled with so much beauty that from that time I entered into a controversy with my own thoughts," he says, "and I began to think if I should discover how to make enamels. I could make earthen vessels and other things very prettily;" and later on he says, "thereafter, regardless of the fact that I had no knowledge of clays, I began to seek for the enamels as a man gropes in the dark." Again, "without having heard of what the said enamels were composed, I pounded, in those days, all the substances I could suppose likely to make anything, and having pounded and ground them, I bought a quantity of earthen pots, and after having broken them in pieces, I put some of the materials that I had ground upon them, and having marked them, I set apart in writing what drugs I had put upon each as a memorandum; then, having made a furnace to my fancy, I set the fragments down to bake, to see whether drugs were able to produce some whitish colour; because I had heard it said that white enamel was the basis of all others." For many weary months Palissy persevered in his experiments, "pounding and grinding new materials and

CONSTRUCTING NEW FURNACES,

and growing poorer and poorer every day. Finding that the furnaces built by himself were unsuitable for his purpose, he tried those of the potters near him, but here, again, he was doomed to disappointment, "for," he says, "when they had baked their batch, and came to take out my trial pieces, I received nothing but shame and loss, for they turned it to god for nothing," the potters' furnace not being hot enough. After many other trials and much anxiety, he again builds his own furnace, and struggles bravely, despite his deep poverty, to obtain the object of his desires. At this time, Palissy was about thirty-seven years of age, and although he had discovered the white enamel, yet he was far from being happy. Poverty pressed him; the quick, his family was large and increasing, his wife was a scold, and the neighbours mocked at his experiments. Yet still he persevered. At one time, owing to his poverty, being unable to purchase wood, he burnt up even the furniture of his poor home.

his furnace, to record in the end only another failure. He tried again, after many months of struggling. He had promised his editors payment this time; his furnace was in good order; his enamels carefully mixed, and everything seemed prosperous. Yet again his evil fortune followed him, for when he threw his batch from the furnace, "the pieces were all bestrewn with little pieces of it, so attached to the enamel that all were lost." This was a sore disappointment, but, at last, after many years of trouble and hard work, he succeeded in making what he called "rustic pieces," as he termed the pottery with the enamelled lobsters, tortoises, and snails, which we know in these days by the name of Palissy ware. This Art worker was imprisoned more than once for his strong religious opinions, and eventually died in the year 1589.

W. N. B.

MARBLE:

ITS SUITABILITY FOR SCULPTURED WORK.

SOME interesting comments have recently appeared in various contemporaries upon the subject of the suitability of marble for public statues in this murky English climate of ours. These comments have, presumably, been excited by the confident assertions of the manager of the Sculptured Marble Company of 11, Queen Victoria Street, E.C., as to the durability of the marble obtained from the Ravaccione quarry at Carrara. The manager of the Sculptured Marble Company has pointed out that marbles are of various qualities; that whereas some are almost as soft as chalk, there are others which have almost the hardness of granite. Both the statue and pedestal of the recently-erected monument to the Queen at Brighton have been wrought from Ravaccione marble—well known alike for its purity and enduring qualities. Its density is 2.597, and it is described by Professor Jervis as "clear white marble, of fine texture,

PERFECTLY HOMOGENEOUS,

and much more resistant than others on its surface." Those words were written in 1889. It was to the marble of a neighbouring quarry that Professor Jervis referred in the paper which he read before the Society of Arts, in 1860, when he said: "One quarry, four miles N.E. of Carrara, is acknowledged to date from Roman times, and to be the spot whence the marble of the Pantheon was obtained. Though originally erected by Agrippa, B.C. 26, that superb building is still in a state of good preservation." After this and other testimony it is just a little absurd to decry generally the virtues of marble for statuary. The statue of the Queen, at Brighton, is a fine work. Professor Nicoli, the sculptor, has a strong and, at the same time, a delicate touch. He well knows how to "infuse with life" the dead stone, and is singularly successful in regard to the fidelity of his portraiture. In his work there is, as a rule, the greater regard for detail and the finer finish, which are characteristic of Italian artists as compared with most of their English brethren. These qualities might not count for much in themselves if they were not united with nobility of conception and strength of imagination. Whether in great public monuments or in what is called "parlour statuary," he is equally a master. Amongst his more colossal works may be specially selected for mention the Bahia monument, representing the expulsion of the Portuguese from Brazil; it is 84ft. 6in. high. Of a similar character, and not less admirable, is the public monument in Carrara to Giuseppe Garibaldi, who, with Cavour and Mazzini, was one of the "makers of Italy." Professor Nicoli has been fortunate in obtaining commissions for public monuments of this character; for to him, also, the world is indebted for the monument to Columbus at Madrid, the monument to Cervantes at Acala de Henares (the place where Spain's great writer was born), the monument to General Accunador at Madrid, and the monument to General Barrios at Guatemala; not to omit to mention statues of the Queen for India and Australia, as well as five statues for Melbourne, Australia, representing Lord Beaconsfield, Mr. Gladstone, President Lincoln, President Garfield, and Charles Dickens. Monuments to Sir Theophilus Shepstone and other celebrated personages are also included in the works of Professor Nicoli. No mention of Professor Nicoli would be complete in which reference was not made to his

ECCLESIASTICAL WORKS,

foremost amongst which must be placed his two marble pulpits with bas-reliefs for the church of San Francisco, Madrid; his twelve apostles with pedestals for the same church, and his altar for the church of the R'spinnela, in Madrid, with the statue of the Madonna of the Conception. Professor Nicoli will doubtless become more and more known in this country, where he is represented by the manager of the Sculptured Marble Company.

Professional Items.

ABERDEEN.—The work of the erection of St. Peter's Episcopal Church, Torry, is now far advanced. The architects are Messrs. Kinross and Tarbolton, Edinburgh. In regard to the design, the first thing probably that will strike the spectator is the cathedral-like height of the building, which, in the interior, is accentuated by the comparative narrowness of the nave. The church is constructed on the design of a nave with projecting right and left aisles, but the aisles are supported on internal pillars, and are not intended for the seating of the congregation, so that the nave, with its series of slender pillars along each side, may be said to constitute the church proper. The width of the nave is about 35ft., and as the height from the floor to the apex of the arched ceiling is about 60ft., some idea will be had of the large extent of space in the interior. The north elevation is pierced by six windows let into the aisle. A line of dwarf windows is seen above the aisles, lighting the upper part of the interior near the roof. The elevation towards Victoria Road is more broken up. Various architectural features here appear, chief among which is a slender bell-tower, rising to a height of from 50ft. to 60ft. At the east end of the church the elevation is unpierced, and at the west end rough "tuskings" is left for the clergy house, which it is hoped to build at a later time. At some future period, too, it is intended to erect a choir and clergy vestry on the north side. The line of pillars along each side supporting the aisles is so numerous and close together as to hide the aisle windows from anyone not directly opposite them, and as these are the only windows in the church apart from the dwarf windows near the ceiling, there is this curious effect produced of the building being filled with a flood of light, while from the chancel, or the other end, no windows are visible. Pink granite has been employed in the construction, and in small oblong blocks, which gives a distinctly quaint and harmonious effect. From the floor of the nave several steps lead up to the floor of the chancel, at the east end, where there will be a fine altar, fully 12ft. wide. The connection between each pillar and the external walls of the aisles is in the form of a pointed arch, presenting an exceedingly pleasing effect when viewed from the end of the aisle. It is expected that the new church will accommodate about 600. The total cost of what it is intended to complete at present will be about £5000.

BALSALL HEATH.—The Methodist New Connexion have erected a chapel in Ombersley Road, Balsall Heath. The new building has cost about £2500. Built by Mr. George Webb, of Soho Hill, from plans designed by Mr. A. H. Goodall, of Nottingham, the chapel affords accommodation for 470 people. Of red brick, with Bath stone dressings, it is in the Decorated Gothic style of Architecture on the nave and aisles principle.

BARNSELY.—A new Congregational Church, in Farrar Street, off Dodworth Road, Barnsley, has just been opened. The building is from plans by Messrs. Hemsoll and Paterson, of Sheffield, and has cost £1200, exclusive of furnishing and site. The chapel will accommodate about 450.

BOOKING BRIDGE.—The foundation-stone of the new church and convent of the Immaculate Conception of St. Francis, at Booking Bridge, has been laid. The architect is Mr. J. F. Bentley, the designer of the pro-cathedral at Westminster. Messrs. A. Brown and Son are the builders, and Mr. W. L. Tett is clerk of the works. The buildings comprise the church, with sanctuary chapel and transept, cells, corridors, refectory, kitchen, and all the domestic requirements of a religious house. The church, which is to be of red brick with stone dressing, is designed in the Early Decorated style of Church Architecture.

CLEY-NEXT-THE-SEA.—One of the oldest institutions in the town is about to disappear,

the George Inn being demolished, with the two rows of malting establishments, to make room for a new hotel to be erected upon the site. The George is 300 years old at least, and the demolition removes a familiar set of buildings. The architect from whose plans the hotel is being built is Mr. Albert C. Havers, and Messrs. George Riches and Son, of Cromer, are the contractors.

GLASGOW.—The new municipal baths and washhouses in Kay Street, in the Springburn district of Glasgow, just opened, occupy a site some 2000 square yards in extent. They include a swimming pond, 75ft. by 30ft., attached to which are dressing-boxes, foot-baths, spray rooms, &c., at each corner, and a gallery overhead for spectators, the dressing boxes being built on a new principle, which will preclude the appearance of the rot which has hitherto been so destructive in these establishments; fifteen first-class and thirteen second-class hot baths for men, and five hot baths for women; whilst the washing-house contains thirty-four stalls. Instead of the usual timber, the swimming-pond roof is of steel principals, which gives the interior a lighter appearance. Mr. A. B. Macdonald, the City Engineer, prepared the plans.

GRANTOWN.—Messrs. Brown and Watt, architects, Aberdeen, have been commissioned to carry out a new scheme of church building for the Free Church, Grantown-on-Spey. The site is a fine one on the rising ground to the south-east side of the burgh, and the building will contain about 500 sittings. The front elevation will be built of freestone from the Morayshire quarries, with lead quarry lights and rolled cathedral glass in the windows. The height to the terminal on the belfry is 65ft., and the frontage to the public road is 51ft.

HECKMONDWIKE.—A public inquiry has been held at Heckmondwike with reference to the District Council's application for sanction to borrow £6000 for the erection of public baths and a fire brigade station, £1565 for street improvements, and £400 for a new boiler at the destructor works.

LEEDS.—The builders of Leeds are having a busy time. In all the outlying districts row upon row of new buildings are making their appearance. The gratifying feature of this development is that the majority of these houses are spoken for long before they are ready for occupation, which proves that the supply of new dwellings is not in excess of the demand. At a recent meeting of the Corporation Building Clauses Committee the number of plans submitted for new houses and business premises, and for alterations to existing structures, was 126. This establishes a new record.

The third public baths erected by the Leeds Corporation have been opened. They are situated in Holbeck Lane. Built of pressed bricks, with stone dressings, the structure has an attractive exterior. The central portion is three stories high, with a one story wing on each side. The floor of the building is raised about 5ft. above the ground level, and the two entrances are approached by broad stone steps. Over the offices is the manager's house. The cost of the Holbeck Baths is about £8500. Mr. Walter Hanstock, architect, of Leeds and Batley, prepared the designs, and the contracts were let as follows:—For masons' and bricklayers' work, Mr. J. T. Wright; carpenters' and joiners' work, Messrs. G. Oakes and Sons; plumbers' work, Messrs. W. and C. Barrand; engineers' work, Messrs. H. Braithwaite and Co.; fireproofing, Mr. McFarlane; iron-founder's work, Messrs. W. Horsfall and Co.; plasterer's work, Messrs. F. Branton and Co.; slating, Mr. W. Shevill; patent glazing, Messrs. W. Helliwell and Co.; and painting, Mr. Jonas Gaunt.

LINGFIELD.—The new Board school at Baldwins Hill, Lingfield, has been opened. The school, which has been built in the most modern style, is situated only a few yards over the Sussex and Surrey boundary line, close to East Grinstead. Including everything the

total cost has been £2986, and the school will accommodate 250 children.

LIVERPOOL.—The day schools in Dorset Street, Tuebrook, are being altered and enlarged. In the boys' department a new class-room, lavatory, and cloak-room are being provided in addition to the enlarging of the present class-room. In the infants' department there is the enlarging of the schoolroom and the provision of new babies' room and new cloak and lavatory accommodation. In the girls' department a new class-room has been added, and the present class-rooms have been enlarged, for use as cookery school, with scullery, store, complete range, &c., and separate porch for entrance, &c. New lavatory and cloak-room are also being provided. The

Herber Tower for a term of twenty-one years, at a yearly rent of £12. On this act is guaranteed the preservation, at least for a considerable time, of one of the few remaining fragments of the old town. Some eighteen months ago this fragment had come dangerously near to the doom of demolition. The Armourers, Curriers, and Feltmakers' Company of Freeman were then seriously considering an offer for the purchase from them of the Herber Tower, the intention of the purchaser being to raze it to the ground and erect new buildings on the site. In the midst of the negotiations towards this end, there came from the Society for the Protection of Ancient Buildings a strong appeal to the Council, "to prevent an act of vandalism which it is convinced would be considered by posterity as a



drainage scheme has been revised. The work is being carried out from plans and under the superintendence of Messrs. Woolfall and Eccles, 60, Castle Street, Liverpool, the contractor being Mr. W. Knight, of Tuebrook.

MOSELEY.—A new church hall has been erected at the corner of the Chantry and Alcester Roads, Moseley, by the Presbyterian Church of England. The church hall, which is a spacious, commodious building, has cost about £1300. It is built in the Early British style from the plans of Messrs. De Lacy Aherne and McKewan, Colmore Row.

NEWCASTLE.—Among the documents sealed at a recent meeting of the Newcastle City Council was a lease to the Corporation of the

disgrace to the town." Similar representation were made by the Newcastle Society of Antiquarians and by the Executive Committee of the National Trust for Places of Historic Interest or National Beauty. After considerable negotiations, the Stewards of the Armourers, Curriers, and Feltmakers' Company of Freeman agreed to lease the tower to the Corporation for twenty-one years at a rent of £12 per annum, the Corporation keeping the structure in repair.

NEWTON HEATH.—The new premises of the Failsworth Industrial Society have been opened. The site is at the corner of Oldham Road and Church Street, and has cost £4000. The buildings have cost about £14,000, and have been designed by Mr. F. W. Dixon,

Manchester and Oldham. They cover an area of 850 square yards, and have an imposing appearance.

PRESTON.—The plans for the proposed alterations to the Theatre Royal, Preston, prepared by Mr. John P. Briggs, of Effingham House, Arundel Street, Strand, London, were approved at a recent meeting of the Town Council. The pulling down will commence directly after Easter, and the theatre will be opened on October 3rd.

TOTNES.—A memorial window has just been unveiled in Totnes Parish Church. The window is of four lights with tracery, and a type generally met with in Devonshire churches. The upper part of the lower lights is devoted to large-sized figures, under rich canopies, and set on deep ruby and blue backgrounds. The work was designed and executed by Messrs. Couracre and Son, of Plymouth.

WESTON-SUPER-MARE.—The church illustrated on page 190 consists of nave, transepts, and chancel (with octagon end), organ chamber, vestries, &c. The roof will be wagon eaved, and, like most of the interior woodwork, will be of pitch pine. The architect is Mr. W. J. Morley, F.R.I.B.A., of Bradford, his design having been selected in a limited competition. The cost of the building will be about £6000.

WORCESTER.—A new infectious diseases hospital has been erected in the Newtown Road. It has been built at a cost, apart from site and furniture, of £10,000. The buildings consist of an administration block, with residential accommodation for the matron and staff, and separate blocks for scarlatina, typhoid, and diphtheria, a block containing wards for doubtful cases, and wards for private patients, and another block containing a disinfecting chamber, laundry, stores, &c.

WEYMOUTH.—A monument is to be erected at Weymouth as a memorial of the late Sir Henry Edwards, M.P. The monument, which is in light grey Kemnay granite, stands on a plain base 5½ ft. square. On this rests a second base, moulded; then follows the die-block, a massive piece of granite, on which rests an elaborately designed cornice. In its lower part the cornice is square, and is cut into tier after tier of heavy mouldings. In its upper part it is formed again in a series of mouldings into octagon form, and on it rises a column about 3 ft. in diameter at the base, and rising to a height—including the massive projecting capital—of about 13 ft. The upper part of the capital contracts by a series of convex mouldings till it meets the base of a Grecian urn with relieved handle, which forms an effective finish to the monument. Apart from the drapery of the urn, the monument is polished all over, and has a total height from the ground of 3 ft. The work has been executed by Mr. J. J. Oddie, Aberdeen.

YOXFORD.—The works in the partial rebuilding and enlargement of Cockfield Hall, Yoxford, which have taken upwards of two and a half years in execution, have just been completed. The mansion now contains one of the finest entrance-halls in the county. It is open from the ground floor to the first floor by a wide staircase, and has an arcaded gallery at the first floor level. On the ground floor the hall is subdivided by an arcade of three wide arches, access to the first floor being by a wide staircase, elaborately treated and carved. The walls are panelled in wainscot oak, the doors and other fittings being in similar wood. The windows contain medallions of heraldic glass, with the family quarterings. The reception rooms all open into the hall, and are fitted up in harmony therewith. The whole of the work has been executed from the designs and under the superintendence of Mr. E. F. Ishopp, architect and diocesan surveyor. Mr. Alfred Brown, of Braintree, was the contractor; Messrs. John Groom and Son, Ipswich, executed the carving and chimney-pieces; and Mr. George Beddingfield, Ipswich, the plaster ceilings.

Correspondence.

THE HEIGHT OF SCHOOLROOMS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I have read with much interest your report, on page 145, of Marsland v. School Board for London, as I have had in my district two large schools erected and additions made to many more. When I received the plans for the first new school since the passing of the 1894 Act, I carefully considered the question of teachers' room, and decided that, as they were probably used for a very short time each day for luncheon and tea, in addition to use as offices for clerical work, I might reasonably allow a height of 7 ft. 6 in. or 8 ft. to pass. I should think that usually one of the smaller class rooms would be used for managers' committee meetings.

Mr. Marsland deserves thanks for getting the matter settled by the Tribunal of Appeal. —I am, sir, faithfully yours,

HENRY LOVEGROVE.

124, High Street, Shoreditch, E.

Enquiry Department.

WATERTIGHT CELLARS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be much obliged if you would inform me of the best way to construct a watertight cellar to an existing building. The latter is 14 ft. wide by about 50 ft. long and 18 ft. high to roof plate; the walls are 14 in. thick, and go down about 4 ft. into the ground. An absolutely watertight cellar is required under ground floor; the level of latter corresponds with that of the ground outside.—I am, dear sir, yours faithfully,

"INQUIRER."

The building must first be shored up all round, and the walls underpinned just above the footings; then excavate to the required depth, and build the cellar wall, with an asphalted damp course at the level at which the top of the cellar floor will be found. This excavation and walling should be executed a bit at a time to avoid having the whole of the building supported solely by the needling. When the whole of the walling has been completed it must be covered on the outside with a damp resisting material, the best and only reliable one being asphalt; this should be carried up all round the building to a line at least 12 in. above the ground level. After excavating for the floor, cover the whole area with at least 6 in. of broken brick rubbish; lay thereon a 6 in. thickness of cement concrete, and cover the surface of same with asphalt, which must join, and be on the same level with, the damp course. The cellar thus becomes enclosed within a complete shell of asphalt, and will be absolutely watertight.

A QUESTION OF COMMISSION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—A. employs an architect to carry out certain works. The architect, in the usual course, employs a quantity surveyor; the contract is let, and the work completed. The contractor complains that the quantities are in certain items short, and submits an account of what he considers to be the correct measurements. It then becomes necessary that the work should be measured up. Is the architect entitled to any further commission for satisfying himself and his client that the amount claimed is really due before granting a certificate, or can he refuse to do so, and merely give a certificate on the finding of an independent surveyor? If the latter, who is liable to the surveyor for his charges? Or, briefly, is an architect entitled to extra commission for measuring up work for the purpose of granting certificates on account and on completion for the total amount expended?—I am, sir, yours,

"SIC."

If it becomes necessary for any or all of the work under the contract to be measured, the person measuring is clearly entitled to be paid

for his services by the employer. In this case, the surveyor who had prepared the quantities would check the builder's measurements, and prepare a bill of extras which the architect would examine, and upon it make out his certificate. For this latter service architects rarely charge, but they get the usual commission on the total amount of work executed. If the result shows that the errors were serious, the builder may reasonably expect that his surveyor should be paid by the employer, and although he could not, we think, recover his costs, I have known some allowance made to him. The architect would not, we think, be able to charge for any work done in making up the amount due on each certificate.

CUBING TIMBER.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I notice in your issue of the BUILDERS' JOURNAL for March 30, an answer to a correspondent who asks how to find the cubical contents of different size timber. The answer to my mind is very old-fashioned and out of date. The easiest way would be to take the number of running feet, and multiply by the width and divide by 12, and then multiply the product by the thickness and again divide by 12, and the answer will be the number of feet cube.

Example take your reply given:

12 ft. of 2 in. × 9 in. × 9 in. width = $108 \div 12 = 9$ × 2 in. thickness = $18 \div 12 = 1\frac{1}{2}$ ft. cube.

or again take, say, 660 ft. of 2 in. × 4 in.

660 ft. × 4 in. width = $2640 \div 12 = 220$ × 2 in.

thickness = $440 \div 12 = 36\frac{2}{3} = 36\frac{2}{3}$ ft. cube 8 in.

There is a yet more simple way for small-sized timber, such as 1½ in. × 2 in., 2 in. × 2½ in., 2 in. × 3 in., &c., &c., which is to multiply the thickness by the width and with the result, multiply the running feet, and divide by 12 twice.

Example, take 720 ft. of 2 in. × 2½ in.; 2½ multiplied by 2 = 5:

720 ft. × 5 in. = $3600 \div 12 = 300 \div 12 = 25 = 25$ ft. cube.

There are several other ways which are in daily use, but I think the two ways I have shown are the simplest and most easily learnt. Hoping you will find space for this in your next issue, I am, yours truly,

H. O. S.

April 2nd, 1898.

SANITARY INSPECTORS' EXAMINATION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly inform me through your enquiry column, the quickest and cheapest way of getting instruction for the Sanitary Inspectors' Examination? I am a builder's foreman, and believe that success in this examination would be very beneficial to me.—I remain, yours faithfully, C. W. P.

You had better write to the Secretary of the Sanitary Institute, Margaret Street, W., for the syllabus, and also pamphlet, containing particulars relating to the examinations and copies of examination papers set at previous examinations; price 6d. You could also obtain from the same source any other information you may require.

Just inside Westminster Hall, as you enter by the great door in Palace Yard, there are two or three holes in the flagging of the floor. They occur in a straight line to the right of the doorway, and have long ago been filled up with lead and cement, but the traces of them are, and will always remain, distinctly visible. Probably not a dozen people could attribute them to their true cause, and they may, in time to come, puzzle an antiquarian. During the last month of the trial of Orton, such crowds used to assemble round the doors of the Queen's Bench Court to see the claimant pass in and out that the police ordinarily on duty were unable to cope with them. So a barrier was put up, stretching from the gateway of the Hall to the steps up to the Court House, and to hold the iron supports these holes were cut in the flagging. There the traces of them remain, though the Court House has come down, and the Court itself only retains its name "as a concession to prejudice."

Trade and Craft.

A NEW FIREPROOF FLOORING.

One of the latest improvements in the way of fireproof flooring is at present being tested at Dundee, probably for the first time in Scotland, by Mr. Robert Keith, architect, Dundee, who has introduced it in the new stabling establishment in course of erection in St. Andrew's Street, for Mr. David Stratton. The invention comes from America, and is a combination of steel and concrete. Steel girders are set across the floor level at a distance of from 8ft. to 10ft. apart, and on top of these is placed a strong lattice work made from mild steel plates which have been cut and drawn out into wide meshes, resembling a net, and possessing great elasticity and strength. A temporary flooring of wood having been put in, concrete is applied to the depth of about six inches, completely enclosing the steel as in a sandwich, and, when the mass is solidified, the result is a flooring upon which, it is stated, fire could have little or no destructive effect.

MR. GEORGE WRAGGE, OF SALFORD, MANCHESTER.

The new National Provincial Bank at Leeds has been occupying the attention of Mr. George Wragge, of Salford, Manchester, for some time. The whole of the steel casements throughout the building, with bronze fittings, are the work of this firm, as well as the wrought iron balustrades for the staircases, wrought iron entrance gates, and grilles. But the most notable part of the work is the fitting of the interior with aluminium. This material has been employed in the making of the electric light fittings, Teller's counter grille, door handles, and all other furniture for the doors, book desk rails, standards, &c. This metal, as well as several alloys of a similar colour, is receiving Mr. Wragge's special attention in the reproduction of his artistic fittings. It may be mentioned that the firm has secured the contract for the casements for a large mansion now building in Philadelphia, and, as far as we are aware, this is the first use of metal casements in that city. The whole of the work is in bronze, and the contract, we understand, was secured quite apart from all question of price, the section and quality of the work being the main points for consideration. The result, no doubt, will be of remarkable effectiveness.

CONTRACTOR'S LIABILITY.

In the Queen's Bench Division, recently, before Mr. Justice Darling, the case of Jinks v. Lawrence and Sons was heard. It was an action for damages in respect of very serious injuries which the plaintiff had suffered whilst he was walking along the Strand. The accident happened on June 15 last. The plaintiff, who is now about fifty-seven years old, was a grainer and decorator. The defendants were builders and contractors, and were engaged doing some work at 336, Strand, in front of which place there was a hoarding which extended close to the kerb. The plaintiff was walking in the road past the hoarding, when a piece of timber, which weighed about 200lb, was being shifted through a window on the scaffold. The case for the plaintiff was that there was only one man upon the scaffold to receive the timber, that he was unable to control it, and had to go with it or let go. It fell upon the plaintiff, smashing his left foot and leg and seriously injuring his head. His leg had to be amputated half-way below the knee, and he was only able to move with difficulty with the aid of two crutches. Beyond

the injury to the limb, it was said that there was serious brain injury from which he would most probably never recover.—No evidence was called for the defendants.—The jury in the end found a verdict for the plaintiff, damages £500.

AN INACCURATE BILL OF QUANTITIES.

At Churston County Court, Marcus Bridgman, contractor, Paignton, claimed £18 11s. of F. W. Vanstone, surveyor to the Paignton District Council, for damage sustained by reason of defects in a bill of quantities supplied to plaintiff by defendant, &c. The claim was made up as follows: Cost of supplying and laying 290ft. of pipes for the purpose of laying on gas to a lamp, £8 1s.; services by Mr. V. C. Brown, surveyor, £4; balance on £30 lent by plaintiff to defendant, £6 10s. Defendant had paid the £6 10s. into Court with costs, and the £4 for Mr. Brown's services was withdrawn. In October, 1896, it appeared, the District Council required certain work to be done in Tower Road, Paignton, for which defendant prepared the plans and specifications. Tenders were invited, and plaintiff was among the contractors who tendered. It was necessary for plaintiff to get a bill of quantities, and he instructed Vanstone, in his private capacity as a surveyor, to draw up the quantities. It was for mistakes made by defendant in the preparation of the bill and for consequent damages that the plaintiff made his claim. A portion of the work was connecting street lamps with the gas company's main, and defendant did not show the distances. The practice was, if no distances were shown in the bill of quantities, to assume that only a few feet had to be laid. As a matter of fact, plaintiff had to lay over 200ft. of gas piping. Consequently the work cost him more than the £94, the amount of his tender, and he claimed for extras. The District Council referred the matter to an arbitrator, who decided that the work was not an extra as it was in the specification.—Verdict for plaintiff for £8 1s. with costs, the amount to be paid in monthly instalments of £2 each.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

AUDENSHAW.—For sewerage a portion of Droylsden-road, for the District Council. Mr. J. H. Burton, surveyor, 2, Guide-lane, Hookey-hill:—
G. Bell ... £262 5 0
J. Cooper ... 545 8 0
Worthington and Pownall ... 508 8 0
Etheridge & Clarke ... 502 13 0
T. Rowlands ... 459 19 0
H. Davison ... 446 11 0
W. Hurst ... £415 15 6
H. Kinder & Son, Hookey-hill* ... 393 9 6
R. Fish ... 388 4 0
J. Farrell ... 372 2 0
W. J. Froom ... 355 7 8
[Surveyor's estimate, £465 10s.]

BATH.—For the enlargement of Oak-street schools, for the School Board. Mr. W. J. Wilcox, architect, Belmont, Bath:—

	Extra for Brick dado.
W. Webb	£5,735 0
C. Wibley	5,557 10
E. Chancellor	5,462 0
Hayward and Wooster	5,347 0
Long and Sons	5,383 0

BRIDLINGTON QUAY.—For the erection of a pair of villas for Mr. E. Rhodes. Mr. J. Earnshaw, architect, Carlton House, Bridlington Quay:—
R. Bailey ... £1,775 0
J. H. Hudson ... 1,688 10
E. Wilson* ... £1,658 0
[Accepted]

BRIGHTON.—For the erection of a block of buildings for children at the workhouse, for the Union Guardians. Mr. H. S. Reed, architect, Parochial Offices, Prince's-street, Brighton:—
R. Cook and Sons ... £18,569
Sutton and Evershed ... 15,368
W. Brown and Son ... 15,113
Jay Bros. ... 14,900
Peters and Son ... £14,525
J. J. G. Saunders and Sons, Ivory-place, Brighton* ... 14,476
[Accepted]

BROMLEY (Kent).—For sanitary work at the St. Luke's Institute for the Trustees. Mr. Percy B. Strudwick, architect, Bromley, Kent:—
Gransdon ... £56 0 0
Haywood* ... 54 17 6
Poole ... 52 10 0
[Accepted]

DUDLEY.—For additions to premises in Parsons-street, Dudley, for Messrs. Goodwin, Foster, Brown, Limited. Mr. F. Foster, architect, Leamington and Coventry:—
J. D. Ruffell ... £2,577 1
Love and Flint ... 2,340 0
W. Holland & Sons ... 2,250 0
E. J. Charles ... 2,195 0
J. Ballow ... 2,165 0
J. Guest and Son ... 2,030 0
C. A. Horton ... 1,992 0
W. Willetts ... £1,977 0
E. and J. Secker ... 1,976 0
H. Dorset and Co. ... 1,925 0
J. H. Whittaker and Co. ... 1,890 0
W. Dealey, Dudley* ... 1,550 0
[Accepted]

HASLEMERE.—For erecting new house, called "The Lodge," Sottermill, for the Rev. G. H. Purdue, from the drawings by Mr. A. W. G. Harding, of Shottermill, Haslemere:—
Harding Brothers ... £427
Gardiner and Luff* ... £365
Cover and Hill ... 375
[Accepted]

ILKLEY.—For the erection of a block of shops and offices, for Mr. Jackson. Messrs. Isitt, Adkin, and Hill, architects, Prudential-buildings, Bradford:—
Masonry.—M. D. Featherstone, Wells-road, Ilkley ... £2,990 0 0
Joinery.—Lorthill and Balmforth, Little Horton, Bradford ... 1,387 1 7 1/2
Plumbing.—M. Houldsworth, Cunniff-road, Ilkley ... 418 11 0
Slating.—Wm. Atkinson, Kirkstall-road, Leeds ... 226 18 0
Plastering.—O. Lister, Poplar-grove, Ilkley ... 512 0 0
Painting.—G. J. Walton, Great Horton-road, Bradford ... 40 0 0
Shop-front Fitting.—Carr Bros., Ltd., Snowden-street, Bradford ... 610 0 0

IPSWICH.—For additions to schools, Wherstead-road, for the School Board. Mr. Thos. Wm. Cotman, architect, Northgate-street, Ipswich. Quantities by Mr. J. Sidney Parmenter, Ipswich:—
M. Dent ... £2,226
O. Roper ... £1,798
F. Bennett ... 1,935
R. Girling ... 1,752
Grimwood and Sons ... 1,896
Parkington and Son ... 1,698
C. Borrett ... 1,880
S. Kenney ... 1,638
G. Kenney ... 1,855
G. Sadler (withdrawn) ... 1,570
W. Grayston ... 1,816
A. Gayford (withdrawn) ... 1,451
[All of Ipswich.]

LEIGH (Essex).—For the erection of two class-rooms to accommodate 120 children, and cloak-rooms, &c., at the Boys' and Girls' Schools, Leigh-on-Sea, for the Leigh School Board. Mr. Frank E. Smees, architect, 12, West Smithfield, E.C. Quantities by Mr. J. E. Goodchild, 81, Finsbury-pavement, E.C.:—
Hammond and Son ... £1,797
Thorne & Son, Leigh* ... £1,610
West ... 1,750
Bullock and Patten ... 1,444
Symes ... 1,730
[Architect's estimate, £1,650.]

LEYTON.—For the erection of six houses, Vicarage-road, Leyton. Mr. A. L. Pridmore, architect:—
Inkpen ... £3,240
Barker ... £2,985
Fuller and Son ... 3,360
Snewin Bros. and Co. ... 2,850
Downs Bros. ... 8,200
Sizer ... 2,793

LONDON.—For alterations and additions at the "Bereford Arms," Bereford-street, Walworth, for Mr. J. N. T. Commercial, Messrs. Edward Brown and Son, architects, Commercial-street, Bishopsgate:—
Maxwell Bros. Ltd. ... £1,228 0 0
G. E. Todd & Co. ... £1,133 0 0
Wm. Young ... 1,200 0 0
Geo. Newton ... 1,122 7 3
Trent Bros. ... 1,179 0 0
J. V. Kiddle & Son ... 1,070 0 0
S. Salt ... 1,160 0 0
Taperell & Davis* ... 971 0 0
[Accepted]

Vaughan & Browne, Ltd.* ... £120
Jas. Steadman (too late) ... £117
R. Davies and Sons ... £276
Grimes and Son* ... £262
[Accepted]

LONDON.—For decorative and other works to No. 74 Park-crescent, W., for Mr. Charles Burge. Mr. Walter J. Ebbets, architect and surveyor, Savoy House, 115, Strand, W.C.:—
R. A. Yerbury and Sons ... £1,684 0
Bywaters and Son ... £1,130 0
J. M. Macey & Son ... 1,065 0
Maple and Co., Ltd. ... 1,235 10
Campbell Smith and Co. ... 898 6
J. Macintosh ... 1,227 0

LONDON.—For erecting bath and discharge rooms at Isolation Hospital, Muswell Hill, for the Hornsey Urban District Council. Mr. E. J. Lovegrove, engineer and surveyor:—
F. Cottrell ... £1,483
Gough and Co. ... £1,134
Willmott and Sons ... 1,295
Houghton and Son, 1,119
McCormick and Sons ... 1,288
Stroud Green* ... 1,119
[Accepted]

[Surveyor's estimate, £1,100.]

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THE BUILDERS' JOURNAL ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS

An Architectural Causerie.

Royal Institute of Painters in Water Colours.

AN hour, or at most an hour and a half, is as much as anyone can profitably spend in a gallery of pictures, displayed, as they always must be, in a way that renders contemplative

The heat is the unifying element, and the theme has inspired the painter. Accounting this the best of its kind, we seek pleasure elsewhere: in Mr. Sainton's delicately outlined incarnations, for instance. We have, perhaps, in these paintings the originals of his silver-points. It is primarily as drawings that his works claim attention, and exclusive as the idealist is of all but perfected form it goes without saying that his line is the Line of Beauty. Enough has been said, it is hoped, to satisfy the reader that we are not limited by prejudice to any one master or school. The landscapes, being innumerable, are the hardest to speak of, for tradition has hallowed particular ways of presenting land and seascapes to the eye, and we may look at some hundreds without finding anything better to say than that Constable appears to be followed too often by artists, who might, if only to give us a change, either adopt

Railway Guard, Lucknow," No. 202; by Patrick Lewes Forbes, "Church Row, Hampstead," No. 547; and, finally, by Mr. Miller Smith, "The Hall-in-the Wood, near Bolton," No. 133. Returning now to the West Room, and taking things as we find them, we congratulate Miss Jessie Hall on a sheepscap, No. 7; Mr. W. Hatherell, R.I., "Ventimiglia," No. 11; Mr. Thos. Pyne, R.I., "Look on the Stour," No. 18; Miss I. M. Harris upon her beautiful "Wild Flowers," No. 50; Mr. J. L. Grace, "The Fading Year," No. 61; Mr. L. Davies, R.I., "October Afternoon," No. 81; Mr. Wimperis, the Vice-President, "Bawdrey Ferry," No. 89; Miss Ch. Allan, "A Fishing Village," No. 104; Mr. John S. Potts, "Scene on the River Tyne," No. 124—a notably beautiful landscape; Mr. David Green, R.I., "Hill Tops," No. 131; Mr. T. M. Hay, R.S.W., "Mist, Wind, and Rain," No. 168. In the Central



HALF-TIMBER VIADUCTS IN CORNWALL. TREVEDDO.

pleasure impossible. The critic may do something, however, to help a poor friend to make the best of his time, supposing the said friend to be tractable. In the opinion of the writer, the most perfect picture in the West Room is by Ferdinand L. Gröne—"A Quiet Occupation," No. 66. In the usual subject piece, the figures make one picture and the landscape another, but here they are truly inseparable, and the diminutive creatures who would seem to be fishing are as much a part of the scene as the shivering leaves of the trees. If, while looking at 682 paintings, we returned again and again to this it was surely because of something most excellent in it. In point of style it could not be easily placed, as there is not a trace of self-consciousness in it.

or evolve a style of their own. There are nearly as many painters as pictures, some promising well, some already performing well, some even exceeding themselves, and some, not a few, declining. The editor's attention, had he been with us, would have been drawn to a number of paintings, the motive of which is supplied by buildings or parts of buildings, and this would not have been done had they not been deserving: by John Fulleylove, R.I., "The Hotel de Ville, Bruxelles," No. 1; by Bernard Evans, R.I., "From Gourdon to the Mediterranean," No. 113—a stupendously impressive achievement, whether the artist be regarded as a landscape painter or as architectural draughtsman; by C. W. Fothergill, "Cleve Abbey," No. 138; by William Simpson, R.I., "The

Gallery:—F. G. Cotman, R.I., "Homing Ferry," No. 189; J. P. Brinson, "Near Broxley, Kent," No. 238; Lexden L. Pocock, "Needle Point," No. 279. Here must we pause again, for the work is notably beautiful, of a quality rare and delightful—a single figure, seated, intent on the work in her hand; remarkable not merely for beauty, for this, whether present or not, is not what it is insisted upon. The spectator is reminded of Nicholas Maas and his sun-gladdened abstracts of life. H. I. Stock, R.I., "Miss Page," No. 323; Hugh Carter, R.I., "The Punch and Judy Show," No. 328—the best, it was thought, of his, and small as it is, delightful. Mortimer Mompes, R.I., "Maud," to be noted because it is clever:—not Tennyson's, one

would say, nor one to be loved in the usual passionate way. The East Gallery: Miss Abigail Morris's study of shells, 455, may be compared with other little marvels of Art which command respect in these rooms and elsewhere. As proving the painter a painter they compel admiration, and deserve the little room they require. Miss Anna Nordgreen, "Quand on est jeune," No. 477; the very quintessence of Love in its homeliest form—that of the devoted swain and the maiden. The story as told by the painter is epic in its simplicity. The influence is that of the best French school, and, given the subject, a more perfect picture could not be desired. H. N. Rheam, R.I., "My Lady Greensleeves," No. 489, is merely clever. Harold Swanwick, R.I., "The Duck Pond," No. 493; Edwin Hayes, R.I., "New Harbour, Hastings," No. 539; Hugh Carter, R.I., "Fishing for Eels," No. 560; Miss Anna Nordgreen, "In the Snow," No. 584; Val Davis, "At the Door," No. 613: a slight, maidenly figure, unassumingly, unspeakably, sweetly, appealingly, lovely and beautiful. A little picture and modestly priced, comparing the sum named with the pleasure the painter has given.

E. R.

One's Lady Client.

ALTHOUGH the ideals, and the sacred convictions of one's rosy youth have duly dwindled and vanished under the disillusioning and sophisticating process of the years, one still retains with desperate tenacity, a certain fond belief of bygone days, which clings upon the face of one's bald incredulity like the solitary periwinkle upon the face of a surf-denuded rock. With a dauntless, unflinching prejudice, one still holds by the conviction that all women are angels. Accordingly one's relations with one's lady client opened from the standpoint that she was an angel, an angel in disguise possibly, but still an angel. What more could one's lady client desire? Well, it seemed she desired hot water; her house renovated also, but in particular—hot water. One was then in the first blush of one's gilded youth, the client was a friend of a friend's friend, and, of one's folly, one consented to make the fitting of a hot-water service a labour of love plus "expenses." Those unfortunate "expenses" held the germ of future trouble. One's client looked upon them as a handsome concession, and at once regarded herself as conferring obligations instead of incurring them. One never got those "expenses" either, they were not proffered, and one was held by one's delicacy (and disgust) from asking settlement. However one was treated to an unconscionable dose of the hot water; there was no stint of that. It was delivered by post. One's lady client was a young and pretty grass widow with a smile of unfaltering sweetness. We met once briefly in town. Then, while she travelled abroad, her house in the East Riding was given over to the painters and plumbers. The work was duly completed before her return, which was signalled by the following letter:—

The Evergreens,
Wagform,
Yorks.

DEAR MR. ARCHITECT.—I came back the day before yesterday. The house, I am sorry to say, smells of paint dreadfully, particularly in the hall near the stairs, and my butler tells me he never knew paint to smell so before, and thinks it must be cheap paint, though I was anxious that everything should be of the very best, and I think it is a lot of money to pay if the paint is not good. This was one thing I wished to tell you about; another is the nursery wall-paper. My little girl was so terrified that I have had to turn one of the other rooms into a nursery for her, which is very tiresome. I don't think these high Art wall-papers are good for young, growing children unless she is very strong. Another thing about which I particularly wish to write is an extraordinary noise which occurs at times. It is a gobbeling noise and a creaking noise too, and my butler tells me it is the cistern, but it frightened my little girl dreadfully in the night, and the doctor tells me she is not very strong and must be kept quiet and away from all excitements,

so you may imagine my feelings at finding my dear child in tears at her nursery paper, and shrieking with terror at these really most alarming noises which disturbed us last night, and I must ask you to come down and see to it at once, or I feel we shall all be drowned in our beds. I shall be glad to put you up for the night. I think if I had known all the trouble this was going to be I would never have consented to the work being done. I will say nothing about the papering to the other rooms, I daresay I shall get used to them; but I particularly wanted a green paper in the dining-room, as I meant to tell you. I shall expect to see you tomorrow.—Yours sincerely,

ARABELLA CLIENT.

P.S.—Another thing I notice is that the workmen have walked across a corner of the lawn in their hob-nailed boots and worn a path; what Mr. Client will say when he comes back I really do not know! The lawns have always been the pride of his existence.

One was not amused by this letter in the least; one was deeply disappointed and a good deal annoyed; one's professional dignity sprang up on its hind legs, but remained amenable to discipline, and accordingly one replied in terms intended to be at once courteous and dignified; but in the light of intervening years the courtesy is rather that of a courtier on stilts, and the dignity nothing less than that of a Nabob in state on his elephant. One may quote the passage referring to the nursery wall-paper episode:—

I indeed regret to hear of your daughter's hysterical tendencies, and I hope and trust that she will grow out of them. I am afraid I have not had much experience in special medical work, so that if the new paper continues to disagree with your daughter's constitution, perhaps it would be a good plan to ask her medical adviser to prescribe a wall paper suitable to her case.

One excused oneself from travelling 200 miles to view a rusty ball-cock, and suggested a local plumber as an alternative. Nine days later one received the following from one's lady client:—

SIR,—Since I last wrote to you a can of paint has been discovered in the cupboard under the stairs. How we have all escaped being poisoned is a miracle to me. I found my little girl with a bit of PUTTY if you please—rolling it in her hands, poor child! The smell of paint is everywhere, and much worse than when I wrote before, it has even got into my wardrobe, which was in one of the rooms that have not been touched, and which I myself locked before I went away. I open it, to find everything I possess positively reeking of the workmen. My cook tells me they must have boiled their paints on the kitchen range, as it was splashed from end to end, and all our food tastes of oil and TURPENTINE. Pleasant, is it not? As you would not come, I had to send for the plumber. He came in the morning, and left a bag of tools, and went away again almost at once. In the afternoon he came again, with two more horrid looking men, and hung about the house in hob-nailed boots, covered with mud. Fancy my beautiful new stair carpets! Fancy black finger marks all up the wall! Next day, when I told them to put on some of Mr. Client's slippers, they only laughed, and were very, very rude, and went and danced in the kitchen, instead of attending to their work. They have gone at last, but I am hourly expecting the noises in the pipes to begin again worse than ever. They told my butler that all the work was badly done, and would be sure to go "rotten" soon. They said that when the pipes burst in the winter the water will bring down all the ceilings, and it will take months to get the house dry, which is just what I expected. Nice for Mr. Client's rheumatism! Nice for me, who had been to all this trouble and expense, and the servants all leaving and giving the house a bad name!—Yours faithfully,

ARABELLA CLIENT.

To this one made reply the least possible:

MADAM,—I have received yours of Tuesday last. I regret you should have felt it necessary to write in such terms.

One has heard no more of this, one's third client; except that she purses her lips when one's name is mentioned, and has spread the report that one is not "nice."

B. C.

THE foundation stone of the new Central National School, at Almondbury, has been laid. Mr. Lockwood is the architect.

EXAMINATIONS under the auspices of the Royal Institute of British Architects, for the granting of certificates of competency to students desirous of acting as district surveyors under the London Building Act and as building surveyors under local authorities, will be held at the Institute on Thursday and Friday of this week.

HEPWORTH CHURCH, Suffolk, has been completely destroyed by fire. The church was a quaint structure, dedicated to St. Paul, and stood on high ground. The building was of rubble and stone, chiefly in the Early English style, with thatched roof; it comprised chancel, nave, south porch, and a western tower, containing a clock and five bells.

PORTRAITS AS MONUMENTS.*

BY LIONEL CUST.

IF enquiry were made into the strict sense of the word "monument," it would be found that it meant little more than a record of memorial, which should be an incentive to thought. Monuments mostly took form in Architecture, sculpture, and painting. As an independent Art, painting was immeasurably younger than either sculpture or Architecture. The Art of ancient Egypt could be said to be monumental throughout. Into its monuments portraiture entered to a certain extent, but it was chiefly in the form of Architecture. No country in the world was so closely identified with the Art of sculpture as Greece, but the Art was long fettered by formula. Nothing seemed to be admitted in portraiture in ancient Greece that did not carry with it certain characteristics of beauty. It was not until the period when Greece began to decline that

HUMAN PORTRAITURE

began to assert itself. Rome, borrowing its Art from Greece, practised portrait sculpture to an extent which seemed to be quite fabulous, if the statements of the elder Pliny were to be believed. In Mediæval Art portraiture was little used, as the Art of that period was completely consecrated to God and the Church. But from the time of the Renaissance onward to the present day the statue and the bust had reigned supreme in monumental Art. They were often more than mere portraits; they were works of Art, and deserved to rank with the paintings of Titian and Holbein. It was not until the middle of the eighteenth century that the world of Art began to recognise that the Art of ancient Rome was a mere transcript from the Greek. One of the most unfortunate delusions which had beset portrait and artistic work for generations both in England and on the Continent had been the belief that Rome and Rome only, was the Mecca for artists. He did not hesitate to say that the complete subjugation of Art to the decadent sculpture of Rome was a great misfortune to the human race, and nearly proved its artistic ruin. With regard to

THE MARBLE BUST.

he maintained that unless it had a place fixed for it, and unless there was some intention for its creation, it was one of the most useless and meaningless things that an artist could produce. Fortunately for London in its crushing necessities most of its statues were in bronze. It was difficult for the sculptor ever to produce a real portrait; he could not go beyond certain limits in his Art, especially if he were working in marble. He could not catch the varying texture of the skin, the brightness of the eye. As a mere portrait and nothing else the marble bust could seldom be successful. Bronze gave a much more satisfactory statue than marble. Sculpture in terra-cotta was a branch of the Art which seemed to have fallen into a most unnecessary disgrace. By its use colouring could most usefully be brought into play. Portrait statues had before now been made of wood and coloured. Mr. Cust, in conclusion, dealt with memorial, official, and presentation portrait paintings, pointing to the necessity for the exercise of care in the use of portraits for such purposes. Monumental portraits should always contain something of national interest, and should always embrace the accessories. Such portraits should be painted for generations to come, and everything possible should be inserted to aid the knowledge of people who would be unacquainted with the mere individual portrayed.

* Resumé of a lecture delivered at the Royal Institution.

Her Majesty has decided to light Balmoral Castle by electricity. Pipes will convey water power from the Gelder, a stream running into the Dee, at a point about one and a half miles from Balmoral, and the current will be brought to the Castle by means of electric cables.

THE OLD CORNISH VIADUCTS.

BY CHARLES G. HARPER.

A RUN down the Great Western Railway Company's main line this spring, shows that new works of greater or less importance are being undertaken along almost the whole stretch of line between Paddington and Penzance. Very great energy is being displayed here, and, in fact, the Great Western has been changed, by the spirit of the present directors, from the most conservative railway in England to the most go-ahead. It is no secret that the Company has for years past been incurring a very heavy expenditure on the remodelling of the main line, and this outlay has never been heavier than now.

Very little of this has been observed by the travelling public between London and Exeter, although it may have been noticed that nearly all the stations on the way have been entirely remodelled or rebuilt; the most notable of the recently-completed ones being the fine new station at Bath, which has replaced the miserable darkling shed which for so long served that health resort, and served it badly. The most obvious works now on the way down to Exeter are those of the rebuilding of Reading station, whose extensive new platforms and great signal-boxes are rapidly taking shape, while the new road bridges are nearing completion.

Coming to the Exeter to Plymouth section, we find several other works in progress, and others to be still taken in hand before the Great Western can advertise an accelerated service to the Three Towns. At present the line below Exeter is scarce fitted for an express service. It is easy running up to Newton Abbot, with only two hindrances to speed on the way—the old wooden viaduct which carries the line over the unfathomable mud of Cockwood Creek, just below Starcross, and the stretch of single line which runs through the six tunnels between Dawlish and Teignmouth. At Starcross, Newton Abbot, and Totnes it is interesting to note there still remain the old engine-houses and towers of the atmospheric system by which the South Devon Railway—as it then was called—was worked in 1845. Cockwood Viaduct, which is only a few feet above the level of the Exe estuary, is about to be rebuilt, and it is understood that new tunnels will be driven through the red sandstone cliffs, side by side with those already existing between Dawlish and

Teignmouth. When this has been done there will be a double line all the way to Plymouth; but the steep gradients and sharp curves that begin directly after Newton Abbot is left behind are matters that must almost wholly remain. For the heavy work of pulling well-loaded trains over these, Mr. Dean's newly-designed locomotives—the "bull-dogs," as they have been called—are intended. When the great Blackford and Ivybridge half-timbered viaducts, together with the Cornwood and three small ones were rebuilt in granite some years ago, occasion was taken to flatten some of the curves, but they are still rather startling to the traveller, as the "Cornishman" goes swinging round them and ascending the long gradients which overtop the southern spurs of Dartmoor. There are still three old wooden viaducts in Plymouth and its neighbourhood—those of Westonmill and Keyham, and the Pennycomequick Viaduct—straddling crazily over the oozy mud of the Hamoaze creeks, but they are to be rebuilt shortly, and what the Londoner who travels down this way knows as "Plymouth" station is to be immediately taken in hand. "Mill Bay" is the official and local name for this dingy and inefficient station, which, with its cramped approaches and inadequate three platforms, has long been a reproach to the Great Western. Mill Bay is of that peculiar type of station to which Chippenham, Bath, Teignmouth, Newton Abbot, and Truro belonged. They have all disappeared now, with the exception of Chippenham and Newton Abbot, and it is even rumoured that that last eyesore's days are numbered.

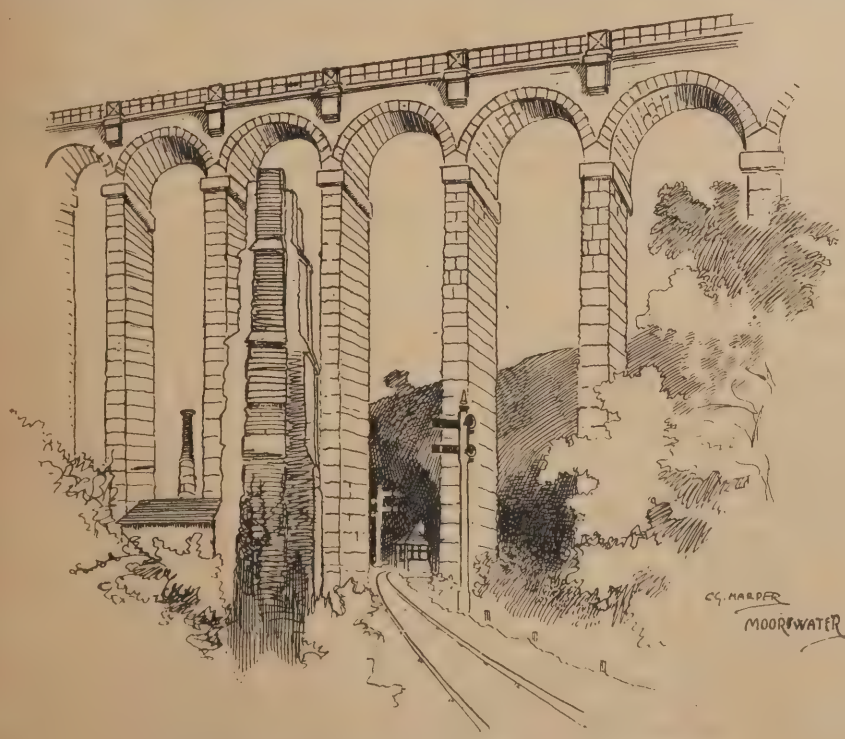
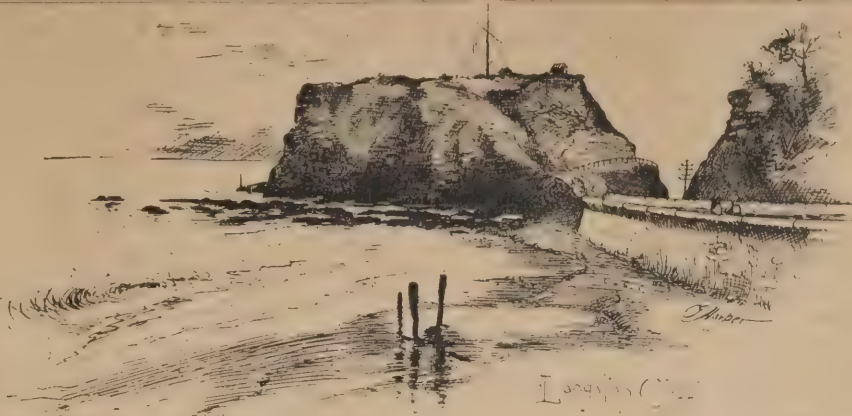
The large amount of £70,000 is to be expended upon the new Mill Bay terminus and its approaches, and the contracts have been

placed with a local firm—that of Mr. W. T. Jinkin, of Plymouth. The new station will be half as large again as the present, and to this end a great deal of property has been acquired by the Company; Adelaide Place, on the east side, being entirely absorbed, together with portions of Buckland Streets and Union Streets. There will be five platforms in the new station, covered for a length of 360ft. with the now favourite "umbrella" roofs, while there will be an iron and glass covered lobby at the entrance to the platforms, occupying 8000 superficial feet. Another, and welcome, feature will be the provision, in the new station yard, of a covered way 110ft. long for sheltering vehicles.

A ramble round the existing buildings, extending to the bridge which carries the line across busy Union Street, is distinctly interesting, as showing some curious survivals, and it is little less than startling to observe that the permanent way across a 60ft. road still rests upon timber baulks, shod and bolted through with iron. This bridge is now being reconstructed without the traffic being suspended, and is being watched night and day. It was built in the days when it was considered a pleasing thing to mask the merely utilitarian purpose of a railway bridge with a classical treatment, and is consequently supported by a double row of peculiarly depressing iron columns cast in the Doric convention.

Below Plymouth the Great Western runs into Cornwall over the Saltash Bridge, opened by Prince Albert on May 3rd, 1859. No one now calls Brunel's great engineering triumph the "Royal Albert Bridge," as it was christened, and we may well rejoice that this is so, because names of that grandiloquent type cannot but detract from, rather than add to, our sense of the greatness of these works. The railway goes over this in single line, and only broadens out into two roads on entering Saltash Station at the Cornish end. The cost of this structure was £225,000, and it is scarce likely that the G.W.R., for the sake of a pedantic boast of having a double line all the way, will go to the huge cost of widening it, especially since the Cornish traffic is mostly of the "omnibus" character, as railway men term local trains stopping at most stations.

So industrious has the Great Western been, indeed, that very few of the picturesque half-timber viaducts are now left. The Cornwall Railway, from Plymouth to Truro, was opened in 1859, to which date these viaducts therefore belong. The line, all the way from Plymouth to Penzance, was originally a single one, save for sidings at the stations, and, when built, economy was the order of the day. Traffic was light in those times, and it sufficed to build the viaducts over the deep Cornish ravines partly of timber. These are of the inverted trestle kind, the wood used being American oak. The Coldrenick Viaduct, illustrated here, is a typical specimen of these daring designs of Brunel's genius, and shows how the woodwork was perched on the apex of the granite piers, built with picturesque irregularity, tapering upwards from the profound Cornish coombes. The piers are formed of plain walls built up to 35ft. below the level of the rails, those of the more lofty viaducts being strengthened by buttresses. The roadway planking rests upon three beams running longitudinally through-



HALF-TIMBER VIADUCTS IN CORNWALL. MOORSWATER.

out the whole length of the viaducts. Each of these beams consists of two pieces of timber, one above the other, fastened together by bolts and joggles. The piers are generally 66ft. apart, the longitudinal timbers being supported at four nearly equi-distant points in this space by straight timbers, radiating fan-shape on elevation from the tops of the piers. The feet of these supporting timbers rest on the masonry in cast-iron shoes, and are connected together by cross-beams and strengthened by iron tie-bars. The strength and elasticity of these apparently frail structures are remarkable, and, although they are being replaced by granite, they are going only because the line is being doubled, and because locomotives and trains very much heavier than any they were ever constructed to carry will be run between Plymouth and Penzance when the works in these districts are done. Coldrenick Viaduct came into disagreeable prominence in February, 1897, on account of the sad accident on the rebuilding works here, by which twelve men lost their lives. Coldrenick is not being rebuilt from the ground, but is rather being remodelled. This plan consisted first of rebuilding, course by course, the upper stage of each one of the thirteen piers in blue Staffordshire brick, with granite quoins. Traffic progressed as usual during the whole of these works, being delayed but very little by reason of Menheniot station being at the down end of the viaduct and by trains ordinarily going over it very slowly, either in stopping or starting. When all the piers had thus been rebuilt in their upper parts, the oak timbering was gradually replaced with iron lattice-girders. This work began from the western end and was carried on by stagings suspended beneath the roadway. The illustration shows this work in progress. It was by the failure of one of the beams to which a staging was thus suspended that the unfortunate men—twelve out of a gang of seventeen—were dashed from a height of 150ft. on to the rocks below. Last autumn another accident happened, at a viaduct half a mile beyond this spot.

Trevedda Viaduct—which we illustrate on our front page—is being replaced by an entirely new granite building, being built side by side with the old one. Trevedda Viaduct is being rebuilt under contract by Messrs. T. Relf and Sons. The old one is of eight spans, and goes in a long curve over Trevedda Woods. It is one of the most dilapidated examples, and is shod with iron, and shod with repairing pieces of wood tied by iron bars, and pickled with creosote in an amazing manner. Others being rebuilt up and down the line near by are those of Trevalga and Tresulgan. Two more below St. Austell are being replaced: those of Trenance and Gover; while those of Carkennick, Carvedras, and Truro, near Truro station, are presently to be begun. There are others on various branches. On the Totnes and Ashburton Railway, purchased outright by the Great Western Railway in the autumn of 1897, works of the kind are in progress; while on the branch from Plymouth to Yelverton two have been rebuilt, and another, the Ham Green Viaduct, is now in progress, between Bickleigh and Yelverton stations. The Falmouth branch from Truro is only 11½ miles long, but it has a surprising number of tremendous wooden viaducts, some of them 150ft. high—those of Ponsanooth, Collegewood, Penwithers and Treliever being specially notable.

Among the viaducts entirely rebuilt the great Moorswater Viaduct is remarkable. This was a work undertaken by the Cornwall Railway, shortly before it was bought out by the Great Western Railway, which already was the largest shareholder in the undertaking. This imposing work is 800ft. long and 150ft. high. Its rebuilding was begun in the early part of 1878, and it was opened on February 26th, 1881, and cost £30,000. It spans a beautiful and romantic valley just beyond Liskeard station, down which ripples the Looe River, on its way to the sea. Beneath its tall arches crouches the little railway station of Moorswater, on the mineral line of the Caradon and Looe Railway.

The country through which the line goes,

all the way from Plymouth, has called forth great engineering ability, but at the same time has made railway work immensely costly. And all this, and the improvements and extensions being made, or to be made, has been done in the face of the decay—the ruin, indeed—of two of Cornwall's three industries, copper and tin mining.

It is pleasing to be able to say that the Great Western is reaping already, and will hereafter reap more largely, the reward of such a policy. Cornwall is becoming one of the most favoured of resorts, and deservedly so, for it is at once the most beautiful, the most romantic, and the most perfectly satisfying of English holiday haunts, and at the same time, with its mild climate, a retreat from the rigours of winter.

THE ARCHITECTURE OF NEW SCOTLAND YARD.

"A PROPOS of the discussion of New Scotland Yard from an architectural point of view," writes a correspondent, "I had occasion to see Mr. Norman Shaw just after the completion of the building in 1890, and he himself distinctly expressed dissatisfaction with it. Now that the thing was finished, he said, he was bound to admit that it was not a success architecturally. The fact is, I have reason to believe, that—at least from the architect's point of view—Mr. Norman Shaw made a mistake in consenting to design this building under official tutelage. Mr. Matthews was at the Home Office at the time, and he and the Commissioner of Police—Sir Charles Warren, if I remember right—handicapped the architect with all sorts of stipulations and special requirements that were absolutely inconsistent with Mr. Shaw's own wishes in the matter. Simple utilitarianism was the dominant consideration everywhere, and next to that the principle which probably exerted most influence on the character of the pile was that which Mr. Ruskin has so strongly insisted on, that the exterior of a building should express the purpose for which it is set up. This New Scotland Yard to some extent certainly does, and on the whole it is, moreover, splendidly adapted for that purpose. But a building minutely designed for police service, and intended to express that purpose on its exterior, could hardly be made beautiful. Nevertheless, it seems to me impossible to dispute that it has a certain grim, bold originality about it, quite unlike anything else in the Metropolis, and certainly not wanting in dignity. Few persons are at all aware, what a multiplicity and variety of purposes this great block is applied to—police stores and mess rooms and kitchens, a tailor's shop, a printing office, a lost property office, a convict's property office, and so on—every room strictly adapted to its purpose, and every room, almost, exceedingly well lighted, warmed and ventilated. It is a splendid block of administrative offices, and Architecture has undoubtedly been sacrificed to some extent to serviceableness. The massive granite constituting the lower part of it has been dressed to so fine a surface that it has the appearance of Portland cement. The superimposing of bricks in this granite without the slightest break in the surface looks mean and ineffective. The chimney-stacks are singularly obtrusive in their bold ugliness, and the turret windows at the corners are curiously paltry in plainness and pettiness. These things justify some of the rough comment that has been poured on New Scotland Yard."

The new senior public school and secondary department of the West Calder School Board, Scotland, has been erected at an estimated cost of £4900.

The directors of the North-Eastern Railway Company have let the contract for the extension of the Middlesbrough dock to Mr. John Scott, of Cothelstone. The entrance channel is to be deepened along its course and widened on the south side. The plans are by Sir J. Wolfe Barry.

THE CASE FOR REGISTRATION.

By ELLIS MARSLAND.

THE question of "The Statutory Registration of the Profession" has occupied the minds of architects for many years, and the council of the Society of Architects is now taking steps to obtain the views of provincial architects upon the subject, with reference to which a Bill has been introduced into Parliament in the present session. With this object a meeting of architects was recently held in the Library of the Philosophical Hall, Park Row, Leeds. The chair was occupied by Mr. T. Walter L. Emden (President of the Society of Architects).—Mr. Ellis Marsland (hon. secretary) read a paper on the question. He asked what was meant by registration? It meant, in the present, that every man practising Architecture should be duly

ENROLLED IN AN OFFICIAL REGISTER

under an Act of Parliament, and be duly responsible for his professional actions, and that no one be allowed to practise until he had been duly enrolled. In the future it meant that no one be allowed to practise Architecture until he was duly qualified and had been found so by undergoing a qualifying examination. At present any person, with or without a fair general education, any builder, builder's foreman, clerk of works, clerk in a Local Board office, auctioneer, undertaker, *et hoc genus omne*, with the sole qualification of being able to provide a brass plate, was at liberty to advertise himself as a person qualified to give advice to the public in the science and Art of Architecture. Builders and others going out of their proper province boldly proffered their services as architects to their customers gratis; and the tempting bait of an apparent saving of 5 per cent. was not to be resisted. Could it be wondered at that

THEY WERE STILL UNRECOGNISED

while such a condition of things existed? for at present the public had no guarantee that the class who called themselves architects were any better qualified to plan and design their buildings than the contractors who erected them, and should they employ an architect they had no means of ascertaining that his knowledge was greater than that of the builder, and the only certainty about it from their point of view was that they would have to pay the professional charges. The advantages arising from registration were these:—Closing the doors to incompetent men; raising the standard of the Profession; and obtaining the confidence of the public and State recognition.—Mr. J. Wreghitt Cannon (Leeds) moved a resolution supporting the movement. He thought they were all agreed that the profession of Architecture was by no means in the position it ought to occupy, or that it was in the possession of those facilities or advantages which it was entitled to possess. For instance, they would be agreed that

THE PROFESSION FELL VERY FAR SHORT

of the professions of law and medicine in the facilities which were afforded it for educational purposes. They would also be all agreed that under existing conditions the profession of Architecture did afford opportunities for entry into it of those who were not strictly entitled to belong to it; and he was sure they would all be agreed that the number of architects was certainly in excess of the requirements of the population of this country. There were in the country some 1500 more architects than there was any necessity for, and there was only one remedy for that state of things, and that was a system of legal registration of architects. He expressed regret that the senior institution—the Royal Institute of British Architects—should not yet have seen its way to give its weight to this movement. When it became convinced that the great body of the Profession throughout the country was in favour of it, it would then give it its support.—Mr. D. Dodgson (Leeds) seconded the resolution, which, after a brief discussion, was carried unanimously.

CREDITON AND ITS DISTRICT.

By G. J. F. HOOKWAY AND A. L. COX.

(Continued from page 179.)

SOME two miles from Colebrook is the hamlet of Coleford, which was at one time a Roman settlement. One and a half miles further north is the village of Copplestone. The great centre of attraction here is the Copplestone Cross; it is of the greatest interest, and consists of a monolith of Dartmoor granite about 10 ft. 6 in. high, and stands on a modern battered or sloping base. The shaft is ornamented in three divisions, each with a different pattern; on all the faces there is, Runic ornament with intricate interlacing design. A few inches from the top is a rudely cut shallow niche that at a remote period certainly contained a figure. The head and arms of the cross are wanting; the whole is covered with yellow

man Conquest. The old home of the Copplestones, much modernised, stands beyond the village amidst beautiful scenery. Many distinguished members of this family have added their name to the roll of bishops and knights who have helped to make our country what it is.

A pleasant walk of two miles brings us to the village of Down St. Mary. It is situated about seven miles north-west of Crediton, and has a church built partly in the Norman, Decorated, and Perpendicular periods, and consisting of a nave, north aisle, and western tower, the latter containing three bells. The entrance to the church on the south side has built over it a rudely carved Norman tympanum, found built into the wall during the restoration of the church. The church has been most successfully restored by the late Henry Gould, and the elaborate fifteenth century screen has also been well and carefully restored by a parishioner, Mr. W. H. Bushell,

old village Cross. It stands upon a granite base; the shaft is chamfered, and likewise the head; the whole is of Dartmoor granite. Sandford and its immediate neighbourhood is, without doubt, the richest and most fertile land in the West country, or in the whole of the kingdom; in fact, for miles the soil is of the richest and most fertile kind.

Not far from here is an old mansion; it is said it dates back to the days of King John, but little of the ancient fabric remains. The centre of the building and the gate house are, however, part of the original work. It belonged to the Dowerich family, and contains several family portraits, with some interesting relics. These relics date back to the Middle Ages. About one and half miles distant is the church of Upton Hellions. It is dedicated to St. Mary, formerly to St. Nicholas, and is built partly of the Norman and Perpendicular periods. It consists of chancel, nave, and south aisle, and western tower, containing one



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lichen. As to its origin we can only suggest that it is a bound stone, for it is situated at the junction of three parishes, viz.: Crediton, Colebrook, and Down St. Mary. Many of the ancient and rudely carved granite crosses on the wild expanses of Dartmoor serve this purpose, and were guides to travellers over the lonely moor. As to the date when this old monolith was first erected we have no exact knowledge, but it is mentioned in a Saxon charter of A.D. 974, and is probably anterior to the establishment of the see of Devonshire at Crediton. It appeals strongly to the antiquarian, and we can but state that Copplestone may have derived its name from it, for in Anglo-Saxon we have "Copp" meaning head, and thus *Copp-lestone* means chief stone.

Here resided, in great state, the Copplestone family. This noble family can trace its pedigree long anterior to the age of the Nor-

and is a credit to him in every way. Down St. Mary is a typical Devonshire village, and the church is well cared for.

Two miles north-west of Crediton is the village of Sandford. Its church, dedicated to St. Swithin, is a small Perpendicular building, consisting of chancel, nave, with clerestory, aisles, south porch, and western tower, containing five bells, all recast in 1748. The upper stage of the tower and nave walls were raised, together with a new chancel and clerestory, which was erected in 1848; consequently little remains of the ancient work as compared with churches in the neighbourhood. There is an old brass to the memory of Mary Dowerich, who died in 1604; the upper part is divided into three parts. Though of a late date, this brass is interesting, in the fact that we have so few remaining in this part of the country. In the churchyard is to be seen the

bell; the piers or responds from which the chancel arch springs are Norman, and some of the masonry of the walls is certainly of this period. The south-west door leading from the porch into the nave is Early Norman, the shafts having simple cushion capitals and bases, similar to those on the tower piers at Crediton Church. The building has undergone partial restoration, but much yet remains to be done. Not far from here is Shobbrook Park, with its stately elms. The village not far distant has little of interest. The church, dedicated to St. Swithin, contains some Norman work, but is mainly Perpendicular in style. The building was almost entirely destroyed by fire in the 17th century and was soon afterwards rebuilt, but of the original work there remains only the Norman door on the south side of the church and some walling. In 1879, the building went through a thorough restoration



CREDITON AND ITS DISTRICT. NEWTON ST. CYRES.

and was enlarged with the addition of the south aisle, and again in 1888 the upper stage of the tower was entirely rebuilt. The Communion plate comprises an ancient flagon which was presented to the church by Thomas Lamplough, who was at the time Bishop of Exeter, 1676-1689. This prelate afterwards became Archbishop of York, and held the latter see from 1689-1691. Sir Jonathan Trelawney, who was also Bishop of Exeter, presented the chalice and paten in 1689. Sir Thomas Bodley, founder of the famous Bodham Library at Oxford, was rector of the parish for some time, and eventually became canon residentiary of Exeter Cathedral.

Taking a south-westerly direction, a walk of about four miles from Crediton brings us to the village of Tedburn St. Mary. Tedburn is really a township and is situated on the high road to Okehampton. The ancient church, dedicated to St. Mary, consists of chancel, nave, north aisle and south porch and lofty embattled and pinnacled western tower. There is Early English work in parts of the building, but, as is usual in most Devonshire churches, the Perpendicular period predominates. On the south side of the nave is a small chantry or chapel. The chancel was mostly rebuilt and the church restored in 1868. About $1\frac{1}{2}$ miles from the church is Great Fulford Park, the ancestral home of the Fulford family. This distinguished family has been represented over and over again in the annals of English history, and none were more noble than Sir Francis Fulford, who lived and held the estates in the middle of the seventeenth century. In such esteem was this sturdy Royalist held, that when Fairfax quartered his army in the neighbourhood he gave the strictest orders to his men and officers to in no way do violence to his person, servants, or property, and to allow Sir Francis to pass the guards between Devon and Dorset. This was granted when he was looking after his lawful affairs, and, furthermore, whoever did violence to either of his family or to his person should answer to the contrary at their peril. The mansion is of the Tudor period, and, as was usual at that time, it surrounds a quadrangle. It is a fine specimen of an old English home, though fallen much into decay. There is to be seen in the entrance hall some fine oak panelling, dating from the reign of Henry VII. The house contains many fine old portraits, together with a full-length painting of Charles I.,

given to the Fulfords by Charles II. soon after the restoration, and it is said that on one occasion Charles I. slept here. The mansion is very interesting, though only portions of it are habitable. The park is extensive and exceedingly beautiful, and far-famed for its splendid avenue. A fine Renaissance tomb to Sir Thomas Fulford, who died in 1610, is to be seen in Dunsford Church, not far distant, but beyond the limits of the district round Crediton. The monument has undergone restoration, and has been re-coloured.

We have now brought to the reader's notice those churches and the many architectural subjects worthy of being included in this short article on the neighbourhood around Crediton. It will be seen that the district is full of interest, and contains many relics of a bygone age. Each village has something or other different from its neighbour. There are many other villages quite as interesting as these which we have described and sketched, but they would make a separate article by themselves, these being only some of the principal. Copplestone certainly is the most interesting for the antiquary.

KEYSTONES.

THE new buildings of the Middlesex Hospital are now rapidly approaching completion.

THE contract for the extension of the Millom Ironworks Pier has been entrusted to Messrs. Gradwell and Co., Barrow. The pier will be made 800ft. longer than it is at present.

IT is reported that six firms of contractors have tendered for the construction of the new dock for the Cardiff Railway Company, and that the contract will be given out shortly. The engineers' estimate for the work is about £666,000.

IN addition to the general memorial for that part of the Diocese of London over which the late Bishop of Bedford presided, it has been decided to erect an open-air pulpit in the churchyard of Spitalfields Church. The estimated cost is £175.

A PROPOSAL is on foot to erect a church for the parish of St. Luke's, Thornaby-on-Tees. Plans for a building capable of seating about 700 people have been prepared by Messrs. Hicks and Charlewood, Newcastle. The estimated cost without the tower is £6000.

THE partial clearance of the block of houses in front of the Cecil Hotel in the Strand that has now been effected will permit of the central archway being set up, and when this has been accomplished the closing of the side roads into the hotel quadrangle will follow, and the entire demolition of the remainder of the old block will be carried out.

THERE is an increase in both the numbers and the value of the private Parliamentary bills deposited for the session relating to railways, canals, tramways, and the supply of gas, electricity, and water, the number being 197, as compared with 188 of last session, and the total amount of money proposed to be raised no less than £53,300,579, as compared with £50,742,141.

A LOCAL GOVERNMENT BOARD inquiry has been held into an application by the Plymouth Corporation for sanction to borrow £22,306 for the erection of a museum and art gallery, £550 for street improvements, £2500 for public lighting, £15,800 for the reconstruction of sewers and repairing of streets, and £1340 for the purchase and adaptation of premises for the purpose of a fire and police station.

THE Scarborough Town Council has resolved to purchase St. Nicholas' House and grounds for £33,000. The estate, which covers an area of about three acres, embraces the mansion facing the Royal Hotel in St. Nicholas Street, with the adjoining shop, and the Exhibition Buildings and Coastguard station on the Fore-shore Road. It is the intention of the Corporation to convert the house into municipal offices, affording accommodation for all the departments of the Town Council, while the gardens and undercliff will be reserved as public pleasure grounds.



CREDITON AND ITS DISTRICT.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
April 20th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ALDERMAN JOHN THOMPSON, the well-known church builder and restorer of cathedrals, has just died at Peterborough. He had during his lifetime been engaged on the restoration of every cathedral in England. He built the Royal College of Music and Church House, and was engaged in the restoration of Peterborough and Salisbury cathedrals.

THE work of rebuilding the old wooden railway station at Windsor is now far advanced. The Queen's waiting-rooms, which are self-contained in one block, have recently been finished. They consist of a general saloon, with a dome of stained glass, and having a handsome fireplace, with overmantel of carved oak, in the design of which the Royal and Imperial monogram and Jubilee dates are repeated. The kerb and back of the grate are of black and white marble. The room is furnished in the French style, with brocaded chairs upholstered in rose terra-cotta, the rugs, which are laid on parquet flooring, matching them in colour. The walls are of solid English light oak, and are panelled in the same warm tints. A double door communicates with a dainty writing-room, provided with lounge chairs and a marqueterie table. Beyond are sumptuously-fitted-up lavatories. Electric light is at command throughout the suite.

THE paper on Modern Stage Mechanism to be read before the Society of Arts to-day (Wednesday) by Mr. Edwin O. Sachs, will deal with practically a new subject, to which little or no attention has so far been given in this country, although important stages worked by hydraulics and electricity have been used in the United States and on the Continent for a considerable number of years. Mr. Sachs, after dealing with elementary equipment of the stage of to-day, will indicate the lines on which modern science may be applied to the mounting of plays, and he will give particulars as regards the general working of the theatre, and speak of various ways of obtaining realistic effects or illusions on the stage effects. A valuable series of photographs, sketches, and drawings from modern stages will then be shown by the aid of limelight views and explained by the lecturer, and among these will be all the more important examples, including those of the Paris, Vienna, Berlin, and other Continental opera houses, as well as Drury Lane and Covent Garden stages. Special reference will be made to the hydraulic installation at Drury Lane, and the electric turn-table stage at Munich.

SIR WILLIAM B. FORWOOD, Chairman of the Library, Museum, and Arts Committee of the Liverpool Corporation, with two other members of the Committee and the Curator of the



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Walker Art Gallery in that city, have recently been on a tour of the London studios with the object of securing attractive works for the next Autumn Exhibition. The curator has just submitted his report, in which he says that the deputation were cordially received, and in nearly all cases received promises of contributions should the works be at the artists' disposal in the autumn. There was no diminution in the production of suitable pictures, and little falling off in important works. The desire to be represented at the Academy and other summer exhibitions in London seemed as dominant as ever, and there appeared every prospect of those metropolitan displays being important and attractive in no ordinary degree. The fine weather of the winter had enabled artists to pursue their labours, and their works were seen to be bright and fresh, and much more finished than in previous years at this time. It was found that young artists are springing up who will worthily carry on the traditions of English Art. At least six sons of eminent painters were visited, and it was found that they bid fair to equal, if not excel, their fathers' artistic productions, though on different lines, while a number of other young artists are striving for fame with every prospect of success. Very few artists complained of want of patronage.

THE MESSRS. COOPER have now in their workshops at Great Pulteney Street an interesting example of modern artistic wood-carving, viz.: a beautifully modelled ceiling, a replica of the perfect timbered roof at St. Margaret's Church, Westminster, well known to all lovers of the few remaining specimens of artistic archaeological Art in these days of disestablishment and decay.

WRITING from Athens to the Times, Sir W. B. Richmond says:—"I very much regret that owing to my absence from England I had no opportunity of adding my name to those of my colleagues who signed a letter in which was expressed just admiration for Mr. Shaw's New Scotland Yard, a building which does honour to the great architect who designed it and to the city in which it stands. Our politicians should be more careful than they have been upon a recent occasion to criticise matters within their knowledge and experience,

and to leave matters of taste to those whose business they are."

THE thousands of visitors to Anne Hathaway's Cottage at Shottery, the scene of Shakespeare's courtship, will be interested to know that some necessary repairs and improvements have been in progress the last few months, and have just been completed. All the window casements were found to be in a dangerous state. The woodwork was utterly rotten, and the old glass and leadwork were falling out. Several of the plaster panels between the timber-framing were on the point of collapse. They had been exposed to the weather from the time the cottage was built—probably between 400 and 500 years—and several of the main timbers were found to be completely decayed in places—especially was this apparent near the rubble foundations. The old windows and casements have been very carefully repaired. English oak frames and mullions have been put in, and the ancient glass has been put back in diamond-shaped leaded lights. All the timbers have been renewed where absolutely necessary, sound oak many centuries old, taken from ancient buildings in Stratford, being used. Two old windows hidden beneath the plaster were discovered and opened up, and oak panelling that has been removed at different periods has been restored to its original position. The massive beams have been scraped of the whitewash which had covered them for generations and properly cleaned and oiled, and the several rooms made more interesting by disclosing once more various old characteristics of the building. The old-fashioned "dog grate" of the living-room was found at the bottom of the old bacon cupboard, where it had remained about fifty years. The old-fashioned garden, containing most of the wild flowers mentioned by the poet, has not been touched. It is intended, however, to restore the old path, the original stones of which are visible in places.

WHILE excavating for the purpose of laying foundations for a villa to be erected on the south side of Wickham Road, Beckenham, a large quantity of ancient brickwork has been discovered. This would appear to be the ruins or foundations of some very old building. The structure—which is being cut through with

much difficulty, transversely and longitudinally, as the present work requires—is composed of extremely hard red bricks, the cement being very coarse and greatly hardened with age. The walls commence some 2ft. below the original surface, and extend to the bottom of the cuttings, which are 6ft. or 7ft. in depth, and possibly still lower. They are about 4ft. in thickness, and evidently several hundred years old. The building plot contains a particularly fine specimen of the cedar tree, which must be at least 500 years of age, and it is not improbable that the original structure may have been erected when the tree was planted. Happily the tree will remain undisturbed. The Wickham Road is one of the most wooded parts of Beckenham, and the site of the proposed villa is on the Kelsey Park estate, a large wooded tract, containing a fine avenue of ancient trees.

In the Chancery Division Mr. Justice Romer has heard the case of *Harrison v. Wood*. The plaintiff sought to enforce a covenant relating to a building line, and also to restrain the defendant from encroaching beyond the line. It appeared from the statement of facts that the defendant owned a considerable piece of land in Wistaston Road, Crewe, and on February 16th, 1894, sold a plot to the plaintiff, the conveyance containing the covenant in question. The plaintiff built some houses on his land, and the defendant retained the adjoining land, and in 1896 (two years later) he built some houses on his land just to the north of the plaintiff's portion. The defendant's main building was not complained of, the complaint being that the defendant had put bay windows to the houses, which encroached about 18in. beyond the building line. The defendant alleged that the plaintiff had himself broken the covenant by putting a small cornice to his house about half-way up the elevation, and that, therefore, he could not rely upon the covenant as against the defendant. The judge looked at photos of the property, and ridiculed the idea that the small cornice, which was simply a piece of ornamental wood-work, was an infringement of the covenant. His Lordship next ridiculed the objection to the defendant's bay windows, which he said had improved the property tremendously. After some further observations by his Lordship, who suggested the matter should be settled by counsel without any further trouble, a compromise was effected by which the plaintiff was freed from his covenant, and was at liberty to build bay windows to the same extent as the defendant's, and the defendant was to indemnify the plaintiff for any liability to any third party he might possibly be put to in doing so.

The Asylum's Committee of the London County Council submitted at the recent meeting the report of Mr. W. Adams, the manager of the Works Department, with regard to the excess over the estimate of £7923 for works completed by the Works Department at the Heath Asylum, Bexley, in the half-year ended September 30th last. The final estimate was £31,306 18s. 10d., and the actual cost £39,230 9s. 10d., the work being done under a schedule of prices prepared by the architect and accepted by the Works Department. Mr. Adams reported that the sum of £1451 18s. 3d. for maintenance of roads and damage by frost was not allowed for by the architect, and there were also preliminary items not included. He observed that the prices generally were low, and should not have been accepted by the Works Department. In conclusion, he said: "It therefore would not appear that the cost can really be called excessive, and I venture to think that the comparison is not unsatisfactory as regards the Works Department. At the same time, I find instances in the methods adopted for the carrying out of this work as described to me, but of which I have no personal knowledge, with which I could not agree, and which, I am of opinion, have enhanced the cost." On the other hand, the architect (Mr. G. T. Hine) defended his position. He stated that, excluding the question of repairs to roads, and assuming that the Works Committee were not preju-

diced in their purchase of materials by the recent rise in building prices, he still considered that the real value of the work was fairly represented by the amount set forth in the final estimate.

The Committee of the Parish Church of St. Nicholas Without and St. Luke, Dublin, appeal for funds to enable them to carry out urgent and necessary repairs to this venerable structure. St. Luke's is the only existing parish church in Dublin which is closely connected with the coming of the Huguenots from France in consequence of the revocation of the Edict of Nantes in 1685. The present ceiling of the church has for some time past been in a somewhat dangerous condition, and the cost of keeping it in repair would be very considerable. It is intended to remove it altogether, and to substitute for it a ceiling which will be permanently secure. The committee mention that the chancel window has given much anxiety on account of its worn-out condition, and it is considered necessary to extend the chancel outward, so as to provide for the reception of a new window. Considerable repairs are also necessary in various parts of the church, including the windows and the roof.

An important arbitration case, under the scheme for the Housing of the Working Classes in the Metropolis, recently came before Mr. H. T. Steward, F.S.I., sitting as sole arbitrator at the London Surveyors' Institution. The parties were Mr. John Cooper, a leather merchant and builder, of Caledonian Road, King's Cross, and the London County Council, the former bringing a claim against the latter for £1833 as compensation in respect of the compulsory purchase of the dwelling-houses, from 20 to 30, Churchway, St. Pancras, and 8 to 10, York Buildings, Somers Town. It appeared that the property which the County Council proposed to acquire under the scheme for the Housing of the Working Classes, in order to erect model dwellings on the site, comprised a group of dwelling-houses, and was let to Mr. Cooper under a lease for a term of three and a-half years, from March, 1897, at a ground rent of £76 per year. Occupying the houses were thirty tenants, paying a weekly rental of £6 15s. The gross annual income derived was £332 1s., from which the usual deductions were made for the purpose of the proceedings before the arbitrator, as follows:—Ground rents, £76; rates, £37 12s. 6½d.; water rate, £5 17s.; insurance, £1 11s. 6d.; repairs, £32 6s.; collection, £16 3s.; allowance for contingencies, £22 12s. 2d., making a total of £192 2s. 2½d. A balance of £130 18s. 9½d. had been taken on the 6 per cent. table at fourteen years' purchase, making a total claim of £1833 3s. 1d. The improvement proposed by the County Council was known as the St. Pancras Churchway Improvement Scheme. For the Council expert evidence was called to show that the value of the property was much less than that claimed for it, and that it was greatly overcrowded. Subsequently the arbitrator visited the property, and decided to reserve his award.

The spring exhibition of the Birmingham Royal Society of Artists consists of about 800 works in various media, and, in general character and quality well maintains the reputation of the Society. There is, perhaps, nothing strikingly original either in the canvases or drawings, but most of the prominent schools in Art are represented, and among the contributors are many painters whose names are so well-known as to be a guarantee of excellence and a sure attraction. One departure the Council has made which will earn for it the thanks of the subscribers and the visiting public—the inclusion of an extremely interesting collection of portrait miniatures.

The collection of valuable pictures and drawings left by the late Mr. F. W. Amsden, of Sydenham, and just dispersed at Christie's, realised upwards of £16,000, and included good works by English and foreign painters. The highest figure was for an example of Van Marcke, one of his well-known cattle subjects, representing cows standing in a pool, and a

tree and foliage background, 1260gs. An interior of a fisherman's cottage, "Watching," by Israels, brought 700gs., and a fishergirl on the seashore, by the same, 580gs.; an Egyptian street scene, painted in 1885, by L. C. Muller, 600gs.; a view on the Thames above Henley, by Vicat Cole, 700gs.; "Great Marlow" and "Harvest Time, rainstorm coming on," by the same artist, 280gs. and 270gs.; "An Autumn Afternoon, Ben Slioch," by H. W. B. Davis, 480gs.; "No Tidings," by Frank Holl, 340gs., and "Bereaved," also by Holl, 240gs.; "Gathering Seaweed," by J. C. Hook, 380gs.; "Landing Eel Pots, evening," by J. Linnell, 405gs.; by B. W. Leader, "On the Thames Teine, Worcestershire," 255gs.; "A Welsh Lake Scene, with trees and figures in the foreground," 225gs.; and another Welsh scene, 280gs.; a river scene, with reeds and a windmill date 1885, by Keeley Halswelle, 235gs.; "Rocks on the Coast, with gulls and cormorants," by Peter Graham, 820gs., and, by the same, "Highland Cattle on the Borders of a Lake," 420gs.; the banks of a river, with cattle, by Daubigny, on panel, 260gs.; and, by Dieterle, a marshy landscape, with cattle, 270gs.

The extension at the south end of the Temperate House, near the Pagoda in Kew Gardens, is now completed. A similar addition to the opposite end of the Temperate House is being rapidly proceeded with. When this is finished this range of conservatories will be one of the finest in the kingdom.

The Art treasures of Scotland seem to be flourishing. The Parliamentary Blue Book just issued on the affairs of the different institutions in that country which are devoted to pictures and antiquities mentions some agreeable facts. The National Gallery has undergone structural repairs and internal renovation, with consequent reclassification of the collection of works of Art. The North British Railway Company paid for the structural repairs, because they were made necessary by their tunnelling operations. Mr. John Ritchie Finlay presented £10,000 to the National Portrait Gallery, and the money is being spent on the decoration and ornamentation of the buildings. The niches of the exterior are being filled with statues of eminent Scotsmen—the category including three Kings (Alexander III., James I., and James V.), the Franciscan Poet (William Dunbar), David Hume, and Watt, and Sir Henry Raeburn, the portrait painter. By adding a further £1000, contributed by Mr. Finlay, to other money available, the authorities of the National Gallery purchased last year for 5000 guineas the splendid picture "La Gloria," which was painted in 1884 by John Phillip, the famous Scotch painter of scenes of Spanish rustic life.

Two windows have just been filled with stained glass in the north choir aisle of Truro Cathedral. The subjects form links in the historic series, illustrating the progress of the Church, designed for the Cathedral. In the eastern light are represented three martyrs of the early Church. In the centre is the figure of St. Cyprian, Bishop of Carthage, clad in episcopal robes of crimson, white, and purple, holding a crozier in his left hand and giving the benediction with the right. A little below him on the left side is the touching figure of St. Perpetua, with her babe in her arms, beautifully depicted. The martyred matron is dressed in green and red. On the side is St. Lawrence, the great Archdeacon of Rome, wearing a dalmatic of blue and gold, and holding the Book of the Gospels in one hand, and a gridiron, the instrument of his martyrdom, in the other. On the predella is represented the scene of St. Cyprian's martyrdom. The martyr is kneeling with his eyes blindfolded by his own hands, wearing his "long, white, girdled linen tunic." The centurion wielding the sword is in the act of giving the death stroke. In the background are soldiers of the 3rd Legion, spectators, and the clergy of the beloved bishop, who witnessed his glorious confession. Below is the inscription: "Cyprianus, martyrizatur." In the western light is represented the boy martyr, St. Pancras, robed in

a blue tunic, with a coloured girdle, crowned, and bearing a palm branch and a cross in either hand. Below is St. Alban, dressed in green and gold, with the sword of martyrdom in one hand and a palm branch in the other. On the right is the figure of St. Katharine, crowned as a Royal Princess, robed in crimson, holding a book and a palm, and with the wheel of her martyrdom by her side. In the predella below is the scene of St. Alban's confession of faith before the magistrate. The latter stands by pagan altar, and in the background are soldiers; the martyr stands with hands bound, boldly and calmly facing his judge. Below are inscribed the words: "Albanus, coram iudice." The lights were executed by Messrs. Clayton and Son, Regent Street.

THE canopied work over the stalls in the chancel of St. Lawrence's Parish Church, Ludlow, has been completed and the niches filled with figures. The work was begun by Sir Gilbert Scott, and his design has been carried out throughout. The posts which terminate the "shades" have been treated somewhat differently, as it was felt that, although the spaces and marks on the posts showed that there had been canopies and niches placed there, the work should be distinctly nineteenth century, and so the forms of the brackets are given a different character. The six angels in each post are holding shields, on each of which is an L in token of St. Lawrence. On the south side are St. Peter carrying the keys, St. Andrew with a cross, St. James the Great with staff, St. John holding a cup with a serpent, St. Philip holding a large cross, St. Bartholomew holding a knife, St. Thomas carrying a kind of lance, St. Matthew with a purse, St. James the Less bearing a club, St. Simon carrying a saw, St. Jude with a lance, St. Matthias bearing an axe, St. Paul with a sword, and St. Barnabas wearing a bishop's mitre. On the screen are represented St. Lawrence, the patron saint, with a gridiron, and St. Chad with a cathedral in his hand. On the north side are Old Testament prophets, viz., Isaiah holding a saw, Jeremiah holding stones, Ezekiel holding a model of a city, Daniel bound with a lion beside him, Hosea breaking an idol, Joel holding a pyramid, Amos as a shepherd, Obadiah with a short scroll, Jonah with a book preaching, Micah holding a star, Nahum holding falling towers, Habakkuk preaching, Zephaniah denouncing, Haggai holding a temple, Zechariah as a priest holding a scroll, and Malachi holding a ring in an attitude of sorrow. The work has been entrusted to Mr. Lawrence Turner.

THE Select Committee inquiring into the cost and administration of the museums of the Science and Art Department held another meeting recently, when Sir John Donnelly, secretary to the department, was examined. Sir H. Howorth said it would be of great assistance to the committee if they could get from the officials of the department an expression of their views as to the changes which were desirable or were not desirable in regard to the housing of the Science and Art collections.—The witness replied that was rather an awkward question. He really did not think it would be proper for him to volunteer any statement which might conflict with the present proposals of the Treasury and the Board of Works. He had already stated that, in his opinion, the science collections should be on the west side of Exhibition Road and the Art collections on the east side. He believed that that was the proper solution of the South Kensington question.—Sir H. Howorth: Mr. Akers Douglas has stated that, with the removal of the residences and of the secretarial offices to Whitehall, the Government find that they will have at their disposal a much larger space than had been previously contemplated, and that, therefore, they will be able to put the Science and Art collections on the one side of Exhibition Road. Do you think the space thus provided will be sufficient for the whole of the collections being placed together?—The witness: I do not think so, and that was my reason for saying that I saw no ground for changing the opinion I have

already expressed on this subject. I contemplate that the museums will increase, and I do not think it wise to consolidate the collections on one side of the road. In answer to further questions, Sir John Donnelly said he thought it was most desirable that the geological museum in Jermyn Street should be transferred to South Kensington. The library which was now in Jermyn Street would be of great value at South Kensington, and under the present system of division they had to duplicate many of the books. He would undertake to bring this view before the Lord President and the Vice-President. As to the Art side, the theory that it was better to have a large series of small rooms in which they could classify their objects rather than a series of very large halls or rooms was absolutely impracticable in their case. He was distinctly in favour of residences being provided for some of the officers—say four—either in the same buildings in which the collections were housed or very close to them. There was, he knew, a morbid fear of fire being caused when the residences were in the actual building, but he did not himself believe that this was a very great source of danger.

MANY years ago, when the cutting for the Grand Canal was being made, an ancient wooden causeway was discovered in the parish of Clonfert, not far from the cathedral. This wooden causeway, on being exposed to the air, crumbled into dust. There is a tradition in the district that a secret underground passage formerly existed connecting the cathedral with the ancient monastery in a field adjoining. Scarcely any trace of this monastery remains. Recently the workmen engaged in the restoration of the cathedral came across a portion of the stonework of the window of the north transept. They also found embedded in the earth some fragments of the ancient monastery, consisting of two portions of a beautifully fluted stone arch. These, with some very old tombstones—one with an English inscription dated 1698, one with a Latin inscription nearly as old, and another with an inscription in Irish very much older than either—have been placed in the vestibule of the cathedral. When the workmen were repairing the ancient sacristy they found what is believed to be the entrance to the secret underground passage referred to. Fearing that injury might be done to any carved stonework which might be found, the excavations have been discontinued for the present. The work of general restoration, however, progresses. It is being done in sections as money is subscribed. The chancel is almost finished. These excavations could be done by competent workmen under the direction of Mr. Fuller, the architect, under whose supervision the restoration of the cathedral is being carried out.

THERE is every chance of considerable delay before the work in connection with the formation of a new foot-tunnel under the Thames at Greenwich, sanctioned by the London County Council more than a year ago, is commenced. When the Bridges Committee of the Council first reported on the desirability for the construction of this tunnel, they stated, on the advice of the engineer, that the total estimated cost of the works amounted to £65,000, and that the cost of acquiring the land for the purposes of the scheme was £5500. In February last tenders for the work were invited from six selected firms. Two tenders only were received—one from Messrs. Mowlem and Co. amounting to £119,732, and the other from Messrs. Pearson and Son amounting to £155,000. Sir Alexander Binnie, the engineer, in a report on the cause of the excess of amount of tender over his estimate, says that no doubt some of the excess is due to the operation of the Council's labour clause. A further cause he assigns to the enhancement of the cost of materials since his estimate was drawn up, and the provision in the conditions of contract that each man when working in compressed air should be supplied with 8000 cubic feet of air per hour. The total power of the Council to expend money under the Act authorising the construction of the tunnel is

limited to £70,500. When, however, the Bill was before Parliament, the committee, after a protracted contest, inserted clauses to meet the claims of those persons whose ferry rights were liable to be affected by the tunnel, as well as those whose interests will be injured by the scheme. To meet these claims it has been decided to include in one of the Council's Bills this year a sum of £30,000. With regard to the sum to be fixed to meet the increased cost of the works, the engineer has advised the Council that, although his amended estimate is £83,175, as against his first estimate of £65,000, he thinks an additional sum of £55,000 should be added to the latter sum, making the total estimated cost of the works £120,000. The total cost of the tunnel, for land, compensation, and works, will therefore be £155,150. The Council has authorised the necessary steps being taken to insert a clause in the Money Bill for 1898, authorising the expenditure of the further sum of £55,000 on the work in connection with the tunnel. Meanwhile, until Parliamentary sanction has been obtained for the extra expenditure, the question of the acceptance of either of the tenders remains in abeyance.

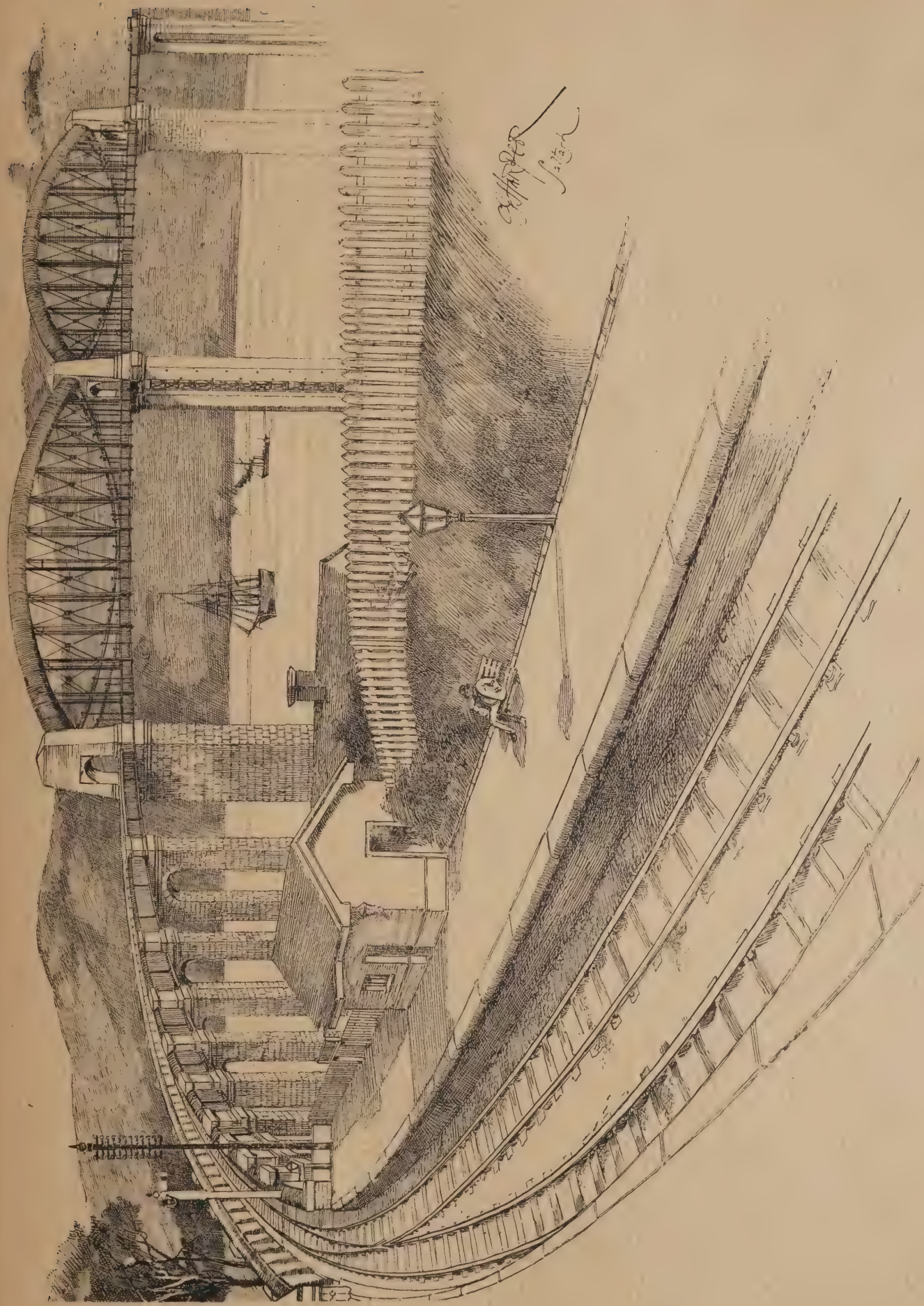
BEFORE Mr. Justice Mathew and a special jury the case of *Firth v. The New Wire Wove Roofing Company Limited* has been heard. It was an action for damages for breach of contract and breach of warranty. The plaintiff, Mr. Arthur Firth, was the principal proprietor of the Craigside Hydropathic Hotel, near Llandudno, and the defendant company, who carry on their business in Queen Victoria Street, E.C., were the patentees and sole manufacturers of a material known as "Duroline." In 1893 the plaintiff had two covered tennis courts erected as an additional attraction to his hotel, and he was advised by a traveller of the defendant company to have his courts roofed with "Duroline," which was guaranteed to be absolutely weather-proof, and a perfect substitute for glass. In consequence, the plaintiff employed the defendants to put up their patent roofing at a cost of £350. Shortly afterwards a tennis tournament was held, and it was found that rain came in through the roof. Complaints were made to the defendants, and they sent down a man to make good the leakages. In the following year, 1894, however, the state of the roof became worse than ever, and when there was any rain the courts could not be used at all. The light also became bad, owing to the duroline becoming dirty and opaque. Under the circumstances, the plaintiff was compelled in 1895 to substitute glass for the duroline in both courts. The plaintiff now claimed to recover back what he had paid to the defendants, and expenses he had incurred in putting on a glass roof.—The defendants contended that the duroline which was put up was perfectly fit and proper for the purpose for which it was supplied. The fault was not due to the material, but to the building to which it was affixed, which was not sufficiently powerful, and vibrated when a strong wind was blowing. Evidence was given that duroline was in use at the Imperial Institute and other places, and had given satisfaction.—One of the directors of the company said he went down to examine the roof of the tennis courts, and found it had been damaged by bits of slate which had evidently been dislodged from the roof of the hotel by the force of the wind, and had cut through the material of the duroline.—After hearing the evidence, the jury returned a verdict for the plaintiff for £350, and judgment was given accordingly.

It was originally intended that the new Vauxhall temporary bridge should have eleven openings, the central one having a span of 70ft. and a height of 20ft. above Trinity high water. It was, however, subsequently found that such a structure would be seriously in the way of traffic on the river, and plans were altered, at a cost of £12,800 beyond the original £30,000 intended. The pier that was to have supported the centre of the bridge has been dispensed with, and a clear waterway of 150ft. thus provided.

SUPPLEMENT TO THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD. WEDNESDAY, APRIL 20, 1892.



HALF-TIMBER VIADUCTS IN CORNWALL. COLDRENICK.



*W. H. R. R.
Saltash*

HALF-TIMBER VIADUCTS IN CORNWALL. SALTASH.

DOMESTIC ARCHITECTURE IN THE UNITED STATES.

By A. N. PATERSON, M.A.

At the meeting of the R.I.B.A. on Monday night a paper entitled "A Study of Domestic Architecture in the Eastern States of America in the year 1896, with special reference to questions of Plan, Construction, Heating, Drainage, &c.," was read by Mr. A. N. Paterson, M.A., Godwin Bursar 1896. In opening his subject, Mr. Paterson said that the first colonists carried with them to America not only the language, the laws, and the flag of the old country, but its Architecture also. In what was known as "Old Colonial" would be found reproduced, with such modifications only as ensued from the adoption of wood instead of brick or stone, the buildings of the time of Queen Anne and the first Georges. Influenced, however, by new conditions of climate, of materials, and of class relations, and impelled by a constant and steadily increasing influx of wealth and demand for comfort, America had produced a type of house characteristic and original.

FROM AN ARTISTIC POINT OF VIEW

the best examples equalled, if they did not surpass, the highest standard of work in Great Britain; while as regards convenience and comfort the type was superior to that common in England, and one from which English architects might learn much. Having shown that climatic conditions were responsible for the open type of plan characteristic of the American house, the lecturer referred to a few of its more distinctive features—the cellar for the heating apparatus, which also had an important part in determining the scheme of drainage; the complete system of heating, reducing draughts to a minimum, allowing double doors of extra width to be wide open, and leading to the almost universal adoption of sliding doors; the effect of spaciousness, even in small houses, due to the large hall and open doors; the verandahs, which had greatly developed in suburban and country residences, and become

A CHARACTERISTIC FEATURE

in plan and elevation; the bedroom "closets," or receptacles for wardrobes, chests of drawers, &c., the heating system rendering the bed-chamber available as a secondary and independent sitting-room or snuggerly, folding beds being largely used; the service-rooms, a marked feature of the American plan, less isolated than in the English house. Types of town houses were then referred to in detail, the lecturer selecting examples of the self-contained residence. The houses of the wealthy conform more to the European model, with American characteristics confined to matters of detail. Appreciative reference was made to examples of self-contained residences at Washington, in which the art of planning is admirably exemplified, the awkwardness of the site being turned to advantage, with due regard to the scale, proportion, and symmetry in the disposition of the apartments. Here, too, brick, the material of the country, has been employed in a natural and simple manner, with commendable reticence in design. The lecturer then followed with a description of apartment houses in New York, their appointments, rents, &c.; workmen's houses, with which New York is but very poorly provided; suburban houses, dwelling particularly on an example at Brookline (Boston); and various types of country houses and summer resorts. In his observations on construction and materials, the lecturer referred to the

STEEL-FRAMED CONSTRUCTION,

so largely employed in the tall buildings of the States, as exerting a very pernicious influence on the architects' art from the point of view of sound Architecture. Buildings were constructed on the principle of a steel cage, divided horizontally into layers, with no internal supports to speak of, and the whole sheathed with an apparently—but utterly sham—constructional skin of granite, stone, brick, or

marble. The stone corbelling under the projecting oriel, a constantly recurring feature, is, in nine cases out of ten, a sham. Window mullions, themselves probably formed of stone sheathing round a steel core, are carried by steel cantilevers bolted at the back into the girders of the floor below, and the correctly designed and jointed corbel courses with difficulty carry their own weight. The expense of stone was offered as an excuse; yet the same house had its marble, mosaic, and hardwood finishings, at a cost ten times what would have sufficed for making the construction honest. For roofs, floors, and partitions, fireproof construction is now generally adopted in all important domestic work in the cities. The elaborately constructed brick and terracotta arches between the girders, common in England, are not used in the States for floors to be subjected to lighter strains. Floors with tension members are coming much into vogue. In

THE CONSTRUCTION OF FLAT ROOFS

an extensive use is made, in combination with other materials, of "roofing paper" or felt, laid in several thicknesses and bedded in tar. Most commonly the outer skin is of copper, laid either directly on the concrete, or on wood and felt, in sheets 12in. by 24in., and with soldered joints. Partitions are commonly built of hollow blocks of porous terracotta. Tiles of similar type are used for casing structural steel work, and in some cases instead of lathing on the internal wall face. Thin fireproof partitions, finishing from 1½in. to 2½in. in thickness, are much in favour from the saving in space effected. These are mainly constructed by using channel or flat bars, with expanded metal lathing or burlap between, plastered with hard setting mortar on both sides. Some interesting particulars having been given of methods of construction in vogue for country and suburban houses, the lecturer went on to discuss the various systems of heating employed, observing that Americans regarded our system of open fires with something of the same feelings as we did the apathy of some of the more outlying countries of Europe and the East concerning modern ideas of sanitation. Nevertheless, the fireplace is as general a feature in American as in English houses, serving as an effectual ventilator, and valued for its cheerful appearance and the decorative character of its surroundings. Steam, hot water, and hot air are

THE MEANS OF HEATING MAINLY EMPLOYED; the two former being much the same as used in public buildings in England. Warming by hot air, essentially applicable to small areas, and almost unknown here, is practically universal in the States for all houses costing about 6000 dollars (£1200) or less. In the smaller class of city houses, in apartment houses, and hotels, where the limitations of space render a multiplicity of air flues embarrassing or impossible, and where its superior cheapness is of importance, direct radiation, either by steam or hot water, is universally adopted. In the more luxurious and expensive city houses indirect radiation is the invariable system. In the largest mansions the assistance of an electrical or steam-driven fan is invoked to regulate the distribution of the heated air, which is also screened and moistened as required. In treating of these methods of heating, after a brief reference to one or two special forms of installation, the lecturer dealt more fully with the hot-air system as being least known in England, illustrating his description by diagrams of the apparatus, the furnace, cold-air supply, and hot-air flues. In matters of

PLUMBING AND DRAINAGE,

the lecturer said America had made great advances and was far ahead of England. This progress was mainly due to the stringent laws adopted by the city Boards of Health, and rigidly enforced. Before building, complete sets of plans and sections showing plumber work and drains, to the scale of a quarter of an inch to the foot, had to be deposited with the Boards. On these the nature and positions of every fitting, pipe, and trap must be clearly indicated. Draft specifications are issued by the authorities for the guidance of architects.

Two main characteristics are apparent in this class of work—viz., the openness of everything, and the substitution, along with cast-iron for fireclay drains, of wrought-iron and brass for lead in the supply and smaller waste pipes. The lecturer closed with a description of the Waring system of sewage disposal for isolated houses and small communities, which is employed very generally throughout the Eastern States, and with entirely satisfactory results.—Professor Kerr, proposing a vote of thanks to the lecturer, said, confining himself entirely to the plan part of the subject, there were several

NATIONAL CHARACTERISTIC PECULIARITIES

which affected the planning of houses in America. Whether the English could derive any benefit from considering them was a question he was not able to answer, but at the present moment he could not see where the benefit was to be obtained. In the first place, there was the question of climate. They must bear in mind that in the United States there were a great many more climates than one, and in the study of "Richardson's Designs" they would find that he mainly adopted the characteristics of the South, and applied them to the Eastern Counties. Another important point was that referred to by the lecturer as

"THE DIFFERENT CLASS RELATIONS."

Those who had been in America, and were connected with American people, would know what he meant when he said that there existed a relationship between master and servant such as did not exist in Europe at all. In America the servant was as good as the master, and, if occasion offered, was a good deal better. There was no denying the fact that that created a social association which was of importance in planning. Then there was another peculiar characteristic about Americans which was not easily explained, and that was their fondness for hotel life. Not that they preferred to go out of their way to live at an hotel, but it was the way in which they occupied their homes. A glance at a plan would show that they were very

MUCH LIKE THE HOTEL;

there was the element of reception observable in the plan in a remarkable way. Would the people of England like the sliding doors which were so prominent in the American houses? It would not do here at all, but the American liked to live in his own house as his own hotel. Without going into the historical part of the subject, they would see that it was the Latin way of living, for the Latin race formed the house with open roof and court, but the Goths founded their plan upon a confined and inclosed principle. A further peculiarity of the American house was the introduction of the closet in the bedroom, with the dust of the luggage, &c. That would not do in this country, and therefore they could not learn a lesson from it. As to the question of

SERVANTS' APARTMENTS,

he maintained that there was a necessity for a separate division, and that the servants were entitled to their own privacy as much as the family was entitled to it.—Mr. H. H. Statham, seconding, said he could not help thinking that a study of the American plans would be a suggestion to them to get a little out of the way of the ordinary view of the house plan—to get out of the habit of making a number of shut-up rooms. It was a question whether with their scientific systems of heating they would not get more space and dignity than they were able to give by the ordinary arrangement. There was a great deal in the American suggestion on the shape of rooms. They did not stick so rigidly to the ordinary square rooms as in England; they rather adopted the oval and circular rooms, which in some points perhaps were inconvenient, but in others had the advantage of lending variety and some times pretty architectural effects internally.—Mr. Paterson briefly replied, observing that he did not bring forward the subject for English architects to look upon it as something superior to what they were accustomed to, but merely as an article for study.

Surveying & Sanitary SUPPLEMENT.

APRIL 20TH, 1898.

Practical Carpentry and Joinery.*

BY GEO. ELLIS.

(Continued from page xxii.)

JOINERY.

HAVING touched upon all the more important points in the construction of a building that appertain to the work of the carpenter, we next have to consider that of the joiner, who is concerned with the interior fittings and embellishments that are intended to make the structure comfortable, useful, and ornamental. The joiner not having to provide against any very searching strains upon his construction, is less interested in the strength of his material than in the accurate fitting of

joints, which being more frequently in tension than in compression, the converse of the carpenter, require intelligent design and careful execution to adopt them to the numberless positions they occupy. Ordinary weather seasoning, although quite suitable for the carpenter, is insufficient for him: his stuff must be "dry," i.e., not only every particle of sap removed, but all the surface moisture which the cells of wood exposed to the air absorb, must be dried out artificially and kept out, and here it may be noted that all the skill of the craftsman exercised to keep surfaces even and shoulders "up" will be wasted if the pores of the wood are not sealed directly he has finished, or if his work is executed in the winter in cold, damp, ill-ventilated workshops, when even the very care exercised in selecting material will tend to defeat its own object, as the drier the wood the more readily will it absorb the surrounding moisture, to be subsequently evaporated with disastrous results.

The construction of doors affords an opportunity of studying the first principles of joinery, in the formation of framing that shall be light, rigid, strong, and unalterable, with its component parts so arranged as to freely expand or contract, according to the hydrous state of the atmosphere, without altering the appearance or weakening the construction.

As it would be impossible within the limits of these articles to deal with every variety of door in general use, six examples have been selected which may be looked upon as types of the method of treatment employed generally. The first example is that of a panelled door (Figs. 94-96), and embodies in its construction many of the principal methods and joints used in joinery, viz., sawing, planeing, mortising, tenoning, grooving, rebating, &c. The plough-groove X (Fig. 96) is a device largely used by the joiner to so secure wide, thin boards in position that they may swell or shrink without injury to the containing frame. Deep grooves are not advisable, as their sides have a tendency to curl away from the panel, due to the moisture absorbed by the inner unprotected surfaces; in most cases $\frac{1}{2}$ in. will be found sufficient, as a 9 in. panel will only shrink $\frac{1}{4}$ in. in width. The mortise and tenon joint used for fastening two pieces of wood together, whose grain runs at right angles, or nearly so, with each other, is probably the most frequently used, as it undoubtedly is the strongest form of joint. It is executed by cutting with a suitable chisel a rectangular hole through one piece parallel with its side; this is the mortise; and a corresponding projection upon the end of the other piece to fit the mortise, by removing parallel slips (the cheeks) from each side with a saw to the required length; the centre piece left is called the tenon, and is secured in the mortise by wedges driven at each end, which, when glued, form a dovetail that is practically immovable. The abutting portions of the joint are called the shoulders, and as not only much of the strength of the frame, but also its good appearance, depends upon the accuracy with which these are fitted, the skilful joiner pays great attention to this part of his work in the preliminary setting out (as the marking of the positions and sizes of mortises, shoulders, &c., is termed). When the shoulders are of equal length on

each side of the tenon, they are said to be "square," irrespective of the angle they may make with the surface; when one side is longer than the other, to fit a moulding or other recessing, they are then called "shouldered" or "odd;" and when they are not at right angles with the edge of the piece they are

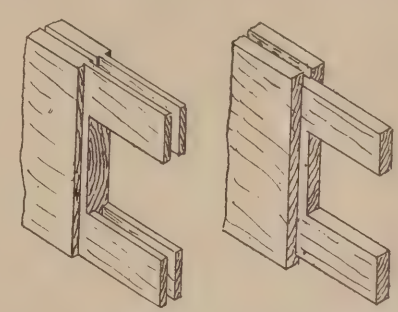


FIG. 98. PAIRS OF DOUBLE TENONS.

FIG. 97. A PAIR OF SINGLE TENONS.

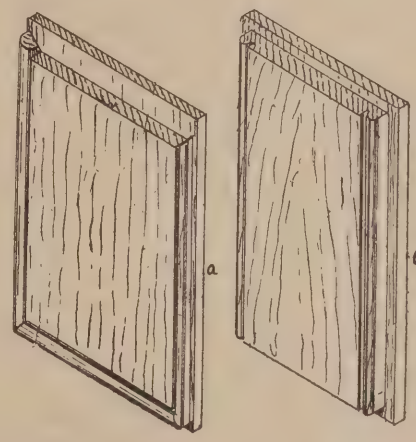


FIG. 99. SKETCH OF BEED FLUSH (a) AND BEED BUTT (b) PANELS.



FIG. 95. ELEVATION. FIG. 96. SECTION.

FIG. 94. PLAN.
A PANELLED DOOR.

the various parts, the regularity and fineness of the surfaces and mouldings, and its susceptibility to a high finish. To this end he pays more attention than the carpenter to the seasoning of his wood, its freedom from knots and air shakes, and to the construction of his

worked on, they are called "bevelled shoulders" (see Fig. 105). When a mortise or tenon is not carried right through the material it is called a stub, as at T (Fig. 95). One tenon, whatever its width, is called a single tenon, whilst one wide tenon, divided into two smaller ones, as at Fig. 97, is a pair of single tenons, and two ranged side by side, as in Fig. 98, are double tenons. A tenon is seldom cut quite down to the shoulder, a small portion being left on, usually $\frac{1}{4}$ in. long. This is the haunch, and fits into a corresponding recess in the mortised piece, termed the haunching. The names of the parts of a door are common to all similar framing; the outer vertical pieces are stiles, the inner similar pieces are muntings. This is a corruption of mounting, from the appearance of the piece being mounted or raised on the panel. The horizontal members are rails, and are identified by their position, as top, bottom, middle, frieze, &c.; the sunk portions are panels. These are classified according to their treatment, as square or flat when as in the upper part of Fig. 95; moulded,

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Fig. 100.
A FRAMED-LEDGED AND BRACED DOOR.



Fig. 101.
SECTION ON A-B.

as at M (Fig. 95); beed butt, as at b (Fig. 99); beed flush, a (Fig. 99); raised panel, when the central part is surrounded by a sunk margin, usually chamfered; tracery, as in the Gothic door (Fig. 110); and drapery, when carved as in the lower part of the same figure. Panels in which the grain runs vertically are named "upright," those in which it runs horizontally, "laying" (see Fig. 105). In beed-butt panels the beed is only worked on the side edges in the direction of the grain, the ends remaining square. In the beed flush—which is somewhat of a misnomer, as the panel is seldom flush and the beed never, beed and return would be nearer the mark—the beed is worked all round the panel, being stuck on the sides as in beed butt, and loose pieces mitred and glued into recesses cut across the ends; this is shown in the isometric sketch (Fig. 99, c), the top return piece being left out to show the recess. They are not an advisable form, for if the panel swells the mitres come open, and if it shrinks the side beads will split off. Tenons should be one-third the thickness of the framing, as this gives equal strength to mortise and tenon. This must, however, be to some extent governed by circumstances, as for instance the thickness of chisels, which increase by sixteenths of an inch, or the thickness of panels, because if the grooves for these exceed the size of the mortise or pass beyond one of its sides they must be stopped at every mortise, which adds considerably to the cost of the work. When the shoulders by the above arrangement exceed $\frac{1}{2}$ in. wide, they should be tongued as shown in Fig. 107, to prevent them curling off, because the glue sinks into the end grain and affords little hold. A framed, ledged and braced door, with solid rebated frame, is shown in Figs. 100-102. These are used in positions exposed to the weather, such as coach houses, back entrances, &c., and are constructed in such manner as to offer as little edge surface to the rain as possible. The two stiles and top rail of the framing are of equal thickness. The other two rails, shown in dotted lines, called ledges, are thinner; they are flush on the back side of the frame, and so arranged that the narrow boards, called the battens, when nailed to them, are flush on the face side. The upper ends and outside edge of these battens are

tongued into a groove running round the framing. The tenons on the ledges are made barefaced—that is, they have shoulders on one side only. Braces equal in thickness to the ledges run diagonally between the rails to keep the door from racking. The lower ends of the braces must be at the hanging stile, and the joints should be made as shown in the figure, stopped back an inch from the shoulder, for, if placed in the angle, the weight of the door will tend to push the stile off. All joints in these doors should be painted and not glued, as also the edges and tongues in the joints of the battens. Iron tongues should not be used, as they rust and discolour the door. Unless the battens are wet when used, an eighth of an inch joint should be allowed at each side for expansion, otherwise the stiles will be thrust off. Wrought nails should be used, punched through and clinched. Double margin doors are wide single doors made to appear like a pair of doors with a beeded joint. When two doors are really used, they are termed either a pair, or double doors, indifferently.

These doors are made in two distinct ways. First, the centre stile is made in one piece, and forked over the top and bottom rails, which are continuous, the intermediate rails stub-tenoned inside, and all tenoned and wedged at the outer ends to the stiles in the ordinary way. Second, the door is formed of two separate leaves, each with a set of rails and two stiles, the middle pair being ploughed and tongued and glued together, then wedged with three pairs of hardwood folding wedges as shown in Fig. 103. After the rails are wedged up, a double quirk beed is recessed in on each side to hide the joint, and a flat iron bar is sometimes sunk in the upper edge of the top rail to further stiffen it. The elevation diagram shows the door in course of construction just after the meeting stiles have been joined together, and before the panels are inserted. The double line indicates the recess for the cover beed, and the central line the joint.

Fig. 104 is an edge view of a meeting stile, showing the mortises for keys and tenons, and also the joint groove. In Figs. 105-107 are given the elevation and sections of a glazed swing door, with diminished stiles, such as are used for interior entrances in shops and public buildings. The essentials of this class

of door are, that they shall open easily and shut automatically, be fairly draught-proof, strong, and admit a maximum of light. These requirements are met by reducing the width of the stiles above the middle rail, keeping the latter low down, making the door of hard wood, as mahogany, teak, walnut, &c., and not less than $1\frac{1}{2}$ in. thick, with wide rails and thick panel, and a substantial frame to absorb the shock occasioned by the swinging. The easy and automatic action on opening and closing is effected by hanging the door on pivot hinges, the lower one being attached to springs (enclosed in a metal box sunk flush with the floor), whose tendency is to keep the door closed in its frame; it however yields readily to pressure applied in either direction, and throws the door back to its original position when released. In some forms of the hinge additional springs are used to check the violence of the swing a few inches from the post, and to allow the door to come to rest slowly. The metal shoe S (Fig. 105) into which the door is fitted, is attached firmly to the steel pivot upon which the door turns: a similar pivot is inserted into the under side of the frame head, and works in a brass plate sunk in the top rail of the door; the upper pivot is mounted on a fulcrum, and can be drawn up flush with the head by turning a screw in the plate to enable the door to be placed in position. The edges of these doors must be shaped to the curve of their path described from the centre of motion.

The next article will open with a description of the method of finding the position of the centre of a swing door.

(To be continued.)

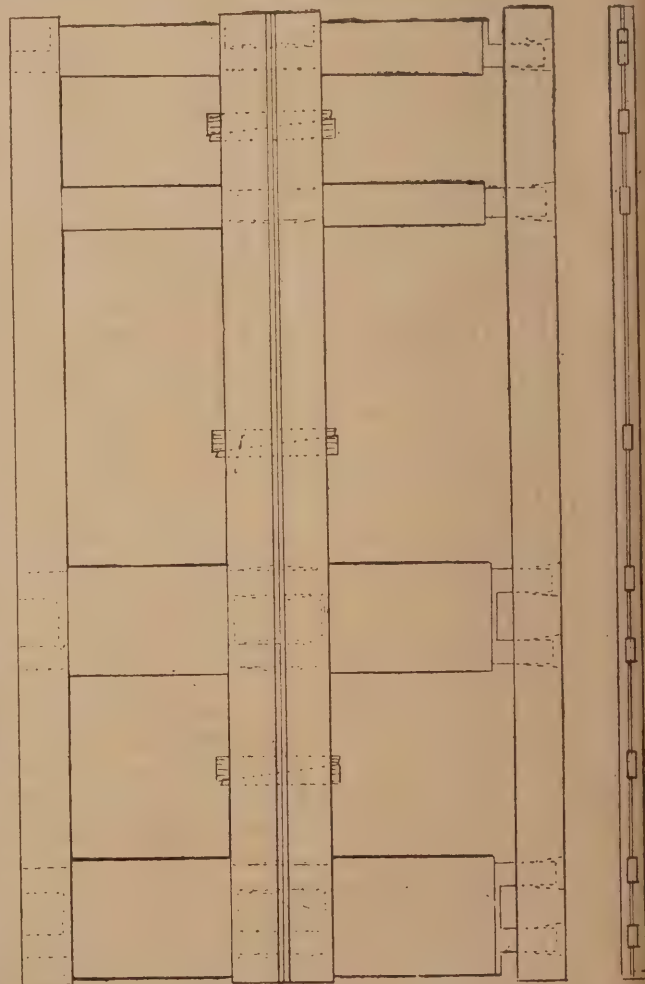


Fig. 103.
A DOUBLE MARGIN DOOR.

Fig. 104.
EDGE OF STILE.



Fig. 102. PLAN.

Surveying and Sanitary Notes.

At the present time the Director of Works Department at Devonport Dockyard is purely a supervising staff, as all new works and alterations are done by contract. This system has been costing in salaries over £4000 a year

will spend no less than £102,683 on new buildings and repairs, exclusive of the Keyham Dockyard extension and the extension of the Royal Naval Barracks. This sum will be distributed over the various Admiralty departments as follows: Devonport Dockyard, £28,900; Keyham, £4329; Royal William Victualling Yard, £11,000; Royal Marine Barracks, £2000; Royal Naval Hospital, £21,450; minor works (each under £1000), £33,013. The most important of the new

arrangements and alterations to schools, £4525. Royal Naval Hospital: New steam laundry, £7400; two new blocks for officers, £15,000; infectious diseases block, £14,000.

At the monthly meeting of the Burntisland Town Council the report of Messrs. J. and A. Leslie and Reid, engineers, Edinburgh, who were called in by the Council to investigate the defective water supply, was submitted. The report shows that among the more serious leaks was one at the harbour, where an old cast-iron pipe, which at a former time supplied water to the harbour lighthouse, was broken by the pressure of railway sleepers, and the water was running to waste there. This pipe has now been cut off. A heavy leak traceable to a blown joint was found in the main pipe between Kilmundy reservoir and a point west of Kirkton, and at Seaforth Place, where a 4in. pipe with an open end was discovered, considerable leakage occurred. In addition to these leakages, Messrs. Leslie and Reid found many defects in the water fittings of houses, wells, and closets, and they make recommendations with a view to obviating further waste from these sources. The Council remitted the report to the Water Committee to have the recommendations carried out.

A REPORT on the drainage of the Tideswell Road district of Eastbourne by Mr. Henry Law states that the area is partly drained by a high level and partly by a low level sewer. With regard to the latter Mr. Law states that this sewer is, for its whole length, below the level of the marshes, and in the winter season the greater part of the sewer must be some feet below the level of the subsoil water. It is, therefore, of the utmost importance that the sewer should be water-tight, but according to Mr. Gloyne, the borough engineer, although "it seems almost incredible," says Mr. Law, the joints of the stoneware pipes, of which the sewer is constructed, are made with clay, a consequence of which has been a leakage into the sewer, when the water in the subsoil is above its level. Mr. Law further records some most eccentric variations in the levels of the sewer; and in the case of at least two houses in Wellesley Road it has been found that the floors of the basements of these houses, which are used as living rooms, are only about a foot above the level of the marshes, while they are more than 7ft. below the level of the highest high water, and 2½ft. below the level of an ordinary spring tide. Flooding has resulted from this condition of things. Mr. Law recommends that the size of the new sewer proposed to be constructed be increased to afford a greater storage capacity on the occasion of heavy falls of rain. The first 760ft. should be laid with stoneware pipes, the diameter being increased from 9in. to 12in., and the remaining 2140ft. should consist of an oval sewer, 30in. by 20in., constructed with concrete blocks. The storage capacity of this sewer would be four times that of the existing sewer. The cost of a sewer of the same dimensions as the existing one is estimated at £1276, and of the larger sewer, as recommended, £1885.

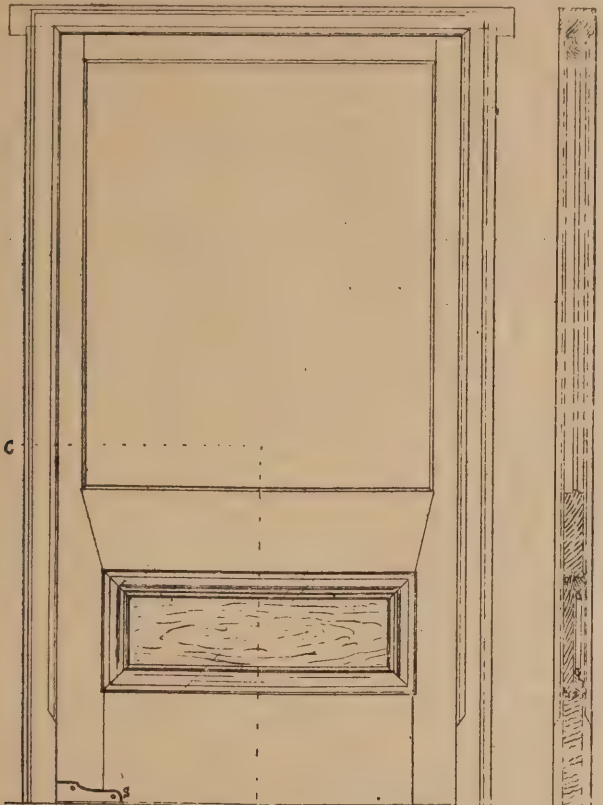


FIG. 105. ELEVATION OF SWING DOOR.

FIG. 106. SECTION.

FIG. 107. SECTION ON C-D.

for this department alone, but it is stated that the Admiralty are considering the advisability of reverting to the system which existed up to about fifteen years ago, when mechanics and labourers were specially employed at Devonport Dockyard, and borne on the Government books as permanent workmen for such works as have of late years been given to contractors. The necessity for such a change is shown by the fact that this year alone the Director of Works Department at Devonport

works with which the Department will be entrusted are: At Devonport Dockyard: New mould loft, to cost £8000; new workshops, £4730; rebuilding No. 8 storehouse, £5500; alterations to No. 3 dock, £3300; launching ways for No. 3 slip, £6940; extension of ship-fitting shop, £4180. At Keyham: Extension of machine shop, £6500; alterations to police quarters, £2320. At Royal William Victualling Yard: New cooorage, to cost £16,000. Royal Marine Barracks: Improved sanitary

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
April 23	Rosslynlee, near Edinburgh—Additions to Asylum, &c.	District Lunacy Board	Dr. E. Anderson, 16, Rutland-square, Edinburgh.
" 23	Barrepper, near Camborne, Cornwall—Church		W. Luke, Merchant, Barrepper, near Camborne.
" 23	Carlisle—Erection of Laundry, &c.		G. D. Oliver, Architect, Carlisle.
" 23	Downpatrick—Alterations, &c., at Infirmary	Governors	County Surveyor, Downpatrick.
" 23	Harmby—Erection of Two Cottages		H. Storey, Harmby.
" 23	Maldon—Erection of Pair of Villas	J. H. R. Moloney	P. M. Beaumont, Architect, Maldon.
" 23	Morecambe—Erection of House and Shops	C. Lee	A. L. Lang, 12A, Pedder-street, Morecambe.
" 23	Selby—Erection of Villas	Trustees of Wesleyan Circuits	Minister's Vestry, behind Wesleyan Chapel, Selby.
" 25	Ilford—School Buildings, &c.	School Board	C. J. Dawson, 7, Bank-buildings, High-street, Ilford.
" 25	Saint George's, Salop—Institute Buildings	St. George's Institute	T. H. Fleming, 102, Darlington-street, Wolverhampton.
" 26	Beccles, Suffolk—Erection of Residence	W. M. Crowfoot, J.P.	F. E. Banham, Architect, Grange-road, Beccles.
" 26	Erdington, near Birmingham—Mortuary	Aston Union Guardians	J. North, Union Offices, Vauxhall-road, Birmingham.
" 26	Filton, Glos.—Erection of Cottage	Great Western Railway Co.	Engineer, Railway Station, Bristol.
" 26	Goole—Erection of Malt-kilns	J. Midnithorp	H. B. Thorp, Architect, Goole.
" 26	Inverness—Chimney Stack	Gas Corporation	Manager, Works, Inverness.
" 26	Neath, Wales—Construction of Footbridges	Great Western Railway Co.	Engineer, Great Western Railway Station, Newport.
" 26	Somerby Bridge—Alterations to House		R. Horsfall and Son, 15, George-street, Halifax.
" 26	Worcester—Alterations, &c., to Station	Great Western Railway Co.	Engineer, Great Western Railway Station, Gloucester.
" 27	Norton Woodseats, near Sheffield—Erection of Lock-up	Standing Joint Committee	J. S. Story, Surveyor, Offices, St. Mary's Gate, Derby.
" 27	Derby—Erection of Infirmary	Union Guardians	E. Thomas and Son, 7, Queen Anne's-gate, S.W.
" 28	Edgmond, Salop—Erection of Agricultural College	Governors, Harper Adam Foundation	H. Teather, Architect, Andrew's-bldgs., Queen-st., Cardiff.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
April 28	London, S.E.—Erection of Refuse Destructor Bldgs., &c.	Rotherhithe Vestry	N. Scorgie, Surveyor, Town Hall, Lower-road, S.E.
" 28	South Hants—Erection of Ward Block	Royal South Hants Infirmary	T. A. F. Hall, Secretary at the Infirmary.
" 29	Oldbury-on-Severn—Church Restoration		Rev. A. J. Barnard, The Rectory, Oldbury-on-Severn.
" 29	Halifax—Erection of Three Houses		C. F. L. Horsfall and Son, Lord-street-chambers, Halifax.
May 2	Wednesfield—School Building	School Board	F. Hunter, Lines Lich Gates, Queen-sq., Wolverhampton.
" 4	Bridgend—Isolation Hospital	Parc Gwyllt Asylum	Giles, Gough, & Trollope, 28, Craven-st., Charing Cross, W.C.
" 5	Farnham—Erection of Four Cottage Residences	Mrs. Kelly	J. A. Eggar, 11, West-street, Farnham.
Aug. 31	Guyaquil—Construction of Custom House	Ecuadorian Government	Commercial Department, Foreign Office, S.W.
Oct. 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.		Brazilian Legation, London.
No date.	Belfast—Erection of Monastery	Very Rev. P. Griffith	A. Ferguson, Royal Avenue, Belfast.
"	Blair Atholl—Mansion House	Duke of Atholl	J. M. Henry, 7, South Charlotte-street, Edinburgh.
"	Crewe—Erection of Business Premises, &c.	Co-operative Friendly Society	G. E. Bolshaw, 189, Lord-street, Southport.
"	Hunsworth, Yorks.—Erection of Club		H. and E. Marten, 5 and 7, Charles-street, Bradford.
"	London, N.—Erection of 40 Houses		A. G. Bond, 19, Villiers-street, Charing Cross, W.C.
"	Shoeburyness—Erection of Cottages	Miss Knapping	Burles and Harris, Architects, Southend-on-Sea.
"	Nottingham—Semi-detached Villas, Foxhall-road		F. H. Collyer, Architect, South-parade, Nottingham.
"	Finedon—Club Buildings		Mosley and Anderson, Architects, Northampton.
"	Llanbadoc, near Usk, Mon.—Additions, &c., to Inn	Phillips and Sons, Ltd.	Swalwell & Creighton, Architects, Dock-st., Newport, Mon.
"	New Cleethorpes—Church Institute		C. Hodgson Fowler, Architect, The College, Durham.
"	Brompton-on-Swale—Walls, Gates, &c., at Cemetery	Parish Council	F. W. Dodds, Catterick Bridge, Brompton-on-Swale.
"	Craigellachie, Aberdeenshire, N.R.—Bank and House	Town and County Bank	Dunn and Findlay, 35, Frederick-street, Edinburgh.
"	Denton, Lancs.—Four Houses	J. Stanley	J. Stanley, 26, Market-street, Denton.
ENGINEERING—			
April 23	Edinburgh—Installation of Electric Light	Lunacy Board	Prof. Bailey, Heriot-Watt College, Chambers-st., Edinburgh.
" 23	Newmarket, Suffolk—Pipelining	Waterworks Co. Ltd.	J. B. Everard, 6, Millstone-lane, Leicester.
" 25	Bury—Boiler	Sewage Committee	J. Cartwright, Engineer, Corporation Offices, Bury.
" 25	Sophia, Bulgaria—Supply of Drinking Water	Municipality	Commercial Department, Foreign Office, S.W.
" 25	Blackpool—Gasholder Tank	Gas Committee	J. Chew, Engineer, Gas Office, Princess-street, Blackpool.
" 25	Stoke-on-Trent—Construction of Railway, &c.	Iron, Steel, and Coal Co. Ltd.	J. J. Prest, Company's Mining Engineer, Shelton.
" 26	Maidenhead to Windsor—Dredging	Thames Conservancy	Engineer at Offices, Victoria Embankment, E.C.
" 26	Petworth, Sussex—Engine	District Council	A. F. Mant, Clerk, Petworth.
" 26	Salford—Bridge Works	Parks Committee	Borough Engineer, Town Hall, Salford.
" 26	London, N.—Cast-iron Water Main	Tottenham Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
" 27	Stranorlar, Donegal—Railway Extension	Donegal Railway Co.	J. Barton, Engineer, Exchange-buildings, Dundalk.
" 29	Carnarvon—Construction of Bridge	Corporation	— Wawn, Anglesey Inn, Carnarvon.
" 30	Sheffield—Steel Bridge	Corporation	C. F. Wike, Town Hall, Sheffield.
" 30	Ball's Bridge, Co. Dublin—Widening Bridge	Pembroke Township Commissioners	The Secretary, Town Hall, Ball's Bridge, Co. Dublin.
" 30	Withington, Lancs.—Hydraulic Plant	District Council	A. H. Mountain, Surveyor, Town Hall, Withington.
" 30	Loch Eloit, North Uist—Construction of Pier	Sir A. C. Orde	Blyth and Westland, 135, George-street, Edinburgh.
" 30	Winchester—Lighting Streets	Town Council	Surveyor, Guildhall, Winchester.
" 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
May 2	Upholland, near Wigan—Water Mains, &c.	District Council	Heaton, Ralph, and Heaton, King-street, Wigan.
" 2	Glasgow—Construction of Railways	Caledonian Railway Company	G. Graham, Buchanan-street Station, Glasgow.
" 14	Bollington, Cheshire—Reservoir, &c.	Urban District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
" 17	Bethnal Green—Supply of Plant and Electric Light	Guardians	Giles, Gough, and Trollope, 28, Craven-street, Strand, W.C.
" 27	Sophia, Bulgaria—Construction of Port		Ministry of Public Works at Sophia.
No date.	Esher—Electrical Installation		O'Gorman & Cozens-Hardy, 21, Embankment-gardens, S.W.
"	Cockermouth—Building Bridge, &c.	Rural District Council	J. B. Wilson, Engineer, Cockermouth.
"	York—Refuse Destructor Plant, &c.	Corporation	A. Creer, City Engineer, Guildhall, York.
IRON AND STEEL—			
April 23	Colne, Lancs.—Supply of Gas Mains	Gas Committee	H. Simmonds, Engineer, Gasworks, Colne.
" 23	Newmarket, Suffolk—Supply of Iron Pipes	Waterworks Co. Ltd.	J. B. Everard, 6, Millstone-lane, Leicester.
" 25	Leeds—Supply of Lamp Pillars, &c.		Inspector's Office, Municipal-buildings, Leeds.
" 27	Stapleford and Shardlow—Pipes	District Council	W. H. Radford, Engineer, Angel Row, Nottingham.
" 30	Workshop—Wrought-iron Tank	Water Company	H. A. Collingwood, 5, Eastgate, Workshop.
May 2	London, S.W.—Supply of Storages	London County Council	Clerk of the Council, County Hall, Spring-gardens, S.W.
" 14	Bollington, Cheshire—Supply of Cast-iron Pipes	Urban District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
No date.	Salford, Manchester—Steam-Piping, &c.	P. R. Jackson and Co. Ltd.	P. R. Jackson & Co. Ltd., Salford Rolling Mills, nr. Manchester
ROADS—			
April 23	Stratford-upon-Avon—Supply of Road Metal	Town Council	E. Dixon, Surveyor, Municipal Offices, Stratford-upon-Avon.
" 23	Hoylake, Cheshire, Supply of Materials, &c.	Urban District Council	T. Foster, Surveyor, District Council Offices, Hoylake.
" 25	Sutherland—Road Works	County Council	A. Argo, County Offices, Golspie, N.B.
" 25	Woodford—Granite Kerb, Setts, &c.	Urban District Council	Surveyor, Council Offices, Woodford Green, Woodford.
" 26	Croydon—Supply of Materials	County Borough	Borough Road Surveyor, Town Hall, Croydon.
" 26	Croydon—Repair of Roads	County Borough	Borough Road Surveyor, Town Hall, Croydon.
" 26	London, N.—Making-up Roads	Tottenham Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
" 26	West Ham, E.—Road Works. (Two Contracts.)	Town Council	L. Angell, Borough Engineer, Town Hall, Stratford, E.
" 27	Leyland, Lancs.—Carting Road Material	Hundred Highway Board	J. Whitfield, 10, High-street, Chorley.
" 27	London, E.C.—Paving	Vestry of St. Luke (Middlesex)	The Surveyor, Vestry Hall, City-road, E.C.
" 27	London, S.E.—Supply of Horses	St. Saviour's Board of Works	G. R. Norrish, Surveyor to Board, Emerson-st., Banksids, S.E.
" 27	Hailsham, Sussex—Supply of Road Materials	Rural District Council	E. Catt, Jun., Clerk, Church-street, Willington.
" 27	Motherwell, Scotland—Causeway	Commissioners	J. McCallum, Engineer, Town Hall, Motherwell.
" 28	London, W.—Re-making, &c., Road	Kensington Guardians	J. H. Rotherglan, Offices, Marloes-road, Kensington, W.
" 29	Walthamstow—Concrete Flags	Urban District Council	G. W. Rolmes, Town Hall, Walthamstow.
May 6	Wanstead, Essex—Making-up Road	Urban District Council	Surveyor, District Council Offices, Wanstead, N.E.
No date.	Hook Heath, near Woking—Road Works		London Necropolis Estate Office, 6, The Broadway, Woking.
"	Northampton—Roadways and Sewer	Building Society	M. H. Holding, Architect, Corn Exchange, Northampton.
"	Sheffield—Five New Roads		Smith, Denton, and Co., Hartshead, Sheffield.
SANITARY—			
April 25	Haworth, Yorks.—Scavenging	Urban District Council	Council's Office, Mill Hey, Haworth.
" 25	Waterford—Supply of Sewer Pipes, &c.	Urban Sanitary Authority	Borough Surveyor, Town Hall, Waterford.
" 25	Waterford—Construction of Sewers, &c.	Corporation	M. J. Fleming, Borough Surveyor, Town Hall, Waterford.
" 26	Egremont, Cheshire—Pipe Sewers	Wallasey Urban District Council	W. H. Travers, Public Offices, Church-street, Egremont.
" 26	West Ham—Ten Slop Carts	County Borough	L. Angell, Town Hall, Stratford, E.
" 27	Stapleford and Shardlow—Sewerage Works	Rural District Councils	W. H. Radford, Engineer, Angel-row, Nottingham.
" 28	Cuckfield—Filter Sand and Pea Gravel	Rural District Council	J. Mansergh, 5, Victoria-street, S.W.
No date.	Newmarket—Drainage Works	Rural District Council	S. J. Ennion, Deva-chambers, Newmarket.
TIMBER—			
April 25	Lewisham—Supply of Yellow Deal Ends	Union Guardians	H. C. Mott, 293, High-street, Lewisham.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
May 1	Belper—Sewage Disposal Schemes	£52 10s., £26 5s.	Urban District Council.
" 25	Tipton, Staffs.—Laying-out Park	£25, £10	Urban District Council.
" 28	Trowbridge—Technical School	£10, £30, £20	The Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major F. L. Anderson, R.E., South Camp, Aldershot.
June 7	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 24	East Ham—Offices, Fire Station, and Public Baths	£105, £52 10s.	Urban District Council.
July 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phoebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.

FURNITURE: PAST AND PRESENT.*

BY W. ROLAND PECK, F.A.I., F.S.A.

(Continued from page 188.)

AFTER Chippendale, the other well known men are Shearer, Hepplewhite, and Sheraton. The less known names are Mannering, Ince and Mayhew, Copeland, Lock and Johnson. As I can only judge of these by the few designs of theirs now in existence, I must class them all as inferior to Chippendale, and, having no special and individual style, they can only remain in history as worthy imitators of their great master. Of the beautiful blending of many Italian styles by the Brothers Adam, plenty of examples still exist, but their position is primarily that of architects, and the furniture they designed, chaste and beautiful as it is, was intended only to be subservient to their interior decoration. Both these famous men were, at different times, architects to the King. One of their greatest works was the rescuing of the land from the Thames and the building thereon, upon a series of arches, of what is known as Adelphi Terrace. In 1788 the "Society of London Cabinet Makers' Book of Prices" was published, and Shearer and Hepplewhite were both members of the Society. This book was issued for the general good without any desire in the part of the designers to reserve any benefit accruing to themselves, and the working cabinet makers throughout the kingdom freely

COPIED THE DESIGNS.

Shearer appears to be best known by his cabinets, secretares, writing, and dressing or wash-tables, containing secret drawers and compartments. In those days banks were not, apparently, used for storing valuables, and these hidden receptacles were utilised as safe places for money, jewels, and deeds. Sir Joshua Reynolds's cash box, sold some time ago at Christie's, although outwardly of perfectly plain appearance, contained numerous secret drawers, not only in the bottom, but also in the sides and lid. In the Society's book of prices, just referred to, I find the pillar-and-claw table first mentioned, as also writing fire-screens. Hepplewhite, who lacked

THE EXQUISITE SENSE OF PROPORTION

and lovely curves of Chippendale, was no doubt a great cabinet maker, and will for ever be known as a master where lightness and grace are concerned. In introducing his book, which is one of the most important contributions to English cabinet making, he says: "My general object is to unite elegance with utility, and blend the useful with the agreeable." He also appears to have been a lover of Art for Art's sake, for he adds that he was anxious to give the benefit of his own improvements to his own countrymen and to those artisans whose distance from the metropolis rendered it difficult for them to acquire knowledge without much trouble and expense. With Hepplewhite we get the connecting link between Chippendale and the more severe lines of Sheraton. He will be remembered for his speciality of coating his furniture with lacquer,

AFTER THE JAPANESE AND CHINESE STYLES, is a ground-work for beautiful painting, principally in scrolls and panels. We also get from him, for the first time, so far as I can ascertain, the shield-back chairs, which, by a common error, are generally classed as Chippendale. Another test whereby we may know a Hepplewhite chair is the carved wheat-ear, and the seats of his chairs are all much smaller than those of Chippendale. This was owing to the fact that ladies about this time were graciously pleased to reduce the size of their bustles. So Hepplewhite we owe the comfort of what we now call the "Grandmother" chair, but we must try and forget that he ever invented the centre settee, of which he seemed to be very proud. Modern auctioneers cannot sell, and sometimes cannot even give away, these umbrous articles. Sheraton, the last of the

great furniture designers of the eighteenth century, has a distinct charm of his own. To him we owe the introduction of the lyre-back to English chairs. To the elegant Hepplewhite sideboards Sheraton added much ornamentation, and at the same time many conveniences, such as the tambour front, the cellarette, and the heated cupboard. He also gave greater prominence to the ornamental brass work at the back, seldom, if ever, using the simple brass rail of his immediate predecessors. The vase-shaped knife boxes, which up to this time had generally been of metal, were made of wood,

BEAUTIFULLY INLAID,

and used by Sheraton as part of and in distinct keeping with his sideboards. These knife boxes, when proved to be genuine, realise, as we all know, high prices at auction, and are generally converted into stationery cases. Speaking for myself, and judging only from the few specimens of authentic work which I have seen, I place Sheraton next to Chippendale, and regret that time does not allow me to refer to some examples of his work, and to give reasons for this opinion. One piece—a perfect poem—I must speak of for a moment. It is a Sheraton toilet table, and will well repay a special visit to South Kensington Museum. Not only does it show Sheraton at his very best period, but the panels are exquisitely painted by Angelica Kauffmann, whilst the other decorations are by Cipriani. Just for a moment let us look at the sentimental side of the question. Poets have in many ages sung of pictures, but furniture does not appear to have inspired their muse. Massinger, in 1660, speaking of the bedchamber of a rich and lovely lady, says: "The silver bathing tub, the cambric rubbers, the embroidered quilt, the bed of gossamer and damask roses." Milton, in "Paradise Regained," speaks of the "stately sideboard." Dryden says: "No sideboards then with gilded plates were dressed." Thackeray, in his "Cane-Bottom'd Chair," gives a charming description of a bachelor's apartment:—

Away from the world and its toils and its cares,
I've a snug little kingdom up four pairs of stairs.

This snug little chamber is cramm'd in all nooks
With worthless old knickknacks and silly old books,
And foolish old odds and foolish old ends,
Crack'd bargains from brokers, cheap keepsakes from friends.

No better divan need the Sultan require
Than the creaking old sofa that basks by the fire;
And 'tis wondrous, surely, what music you get
From the rickety, ramshackle, wheezy spinet.

Long, long through the hours, and the night, and the chimes,
How we talk of old books, and old friends, and old times;
As we sit in a fog made of rich Latakia
This chamber is pleasant to you, friend, and me.

But of all the cheap treasures that garnish my nest,
There's one that I love and I cherish the best:
For the finest of couches that's padded with hair
I never would change thee, my cane-bottom'd chair.

'Tis a bandy-legg'd, high shoulder'd, worm-eaten seat,
With a creaking old back, and twisted old feet;
But since that fair morning when Fanny sat there,
I bless thee and love thee, old cane-bottom'd chair.

Although the occupants of these chairs had more interest to the poets than the manufacture, it is interesting to remember that one of the greatest poets of the present century was actually himself a designer and maker of furniture. You will not find many allusions to furniture in the poems of William Morris, but you can trace the influence of his Art theories in the rooms of every cultured man of to-day. He understood the vital importance of encouraging true artistic ideals among the people, and as a result of his work, and of the work of the men of his school of thought, the middle and the upper classes have been impregnated with a revived taste for Mediæval Art. Morris's work has been useful also in the encouragement of craftsmanship. From another point of view it has been of great value in counteracting some of the absurdities that evolved from the growth of the pseudo-aesthetic movement of twenty years ago. It was news to me to discover, a few days ago, that Molière, one of the great lights of the seventeenth century, was brought up as an upholsterer, and followed this—his father's—trade until literature claimed his whole time.

There is, I think, a distinct connection between poets and good furniture, and, after looking at the authenticated chairs of Shakespeare, Burns, Gray, Pope, Wesley, and others, a lover of good work would be compelled to describe them all as beautiful. Finally, we come to the furniture of the present. This is the age of revivals. Strictly speaking, the nineteenth century has no style of its own. It is somewhat remarkable that, although it has given us railways, telegraphs, telephones, penny-post, motor-cars, the new woman, and the other wonderful achievements of the Victorian Era, and although it has seen the birth and glorious manhood of the Auctioneer's Institute of the United Kingdom, it has produced nothing really original in furniture (with the possible exception of a few pieces by Morris and others) which our successors will care to remember. The ugly pedestal sideboards and wardrobes, horse-hair couches and uncomfortable stuffed-backed dining-room chairs remain in the older houses to remind us of the revolt against the graceful lines, delicate carving, and lovely colouring of Chippendale and his school—a revolt brought about by the depressing influence of the Georges. We must try to forget that only a few years ago ebonized and gilt furniture was the rage, and was the only furniture which then realized high prices at auctions, and when Chippendale chairs sold at about 8s. each. We are now repeating the fine examples of

THE WORK OF THE EIGHTEENTH CENTURY, and I look forward with sanguine anticipation to the twentieth century for a style and fashion which will show Britain not only great in wealth, but great in Art; not afraid to copy where the examples are good and true, but improving with a beauty formed from the genius of the time. I cannot leave this period without quoting from Lichfield's very valuable book on furniture. He says:—"There is evidence of the want of interest in the subject of furniture in the auctioneer's catalogue of the day. By the courtesy of Messrs. Christie and Manson the writer has had access to the records of this old firm, and two or three instances of sales of furniture may be given. While the catalogues of the picture sales of 1830-40 were printed on paper of quarto size, and the subjects described at lengths, those of 'furniture' are of the small octavo size . . . and the descriptions rarely exceed a single line . . . the whole proceeds of a day's sale were often less than £100, and sometimes did not reach £50. . . . Armoires by Boulle have during the past few years brought from £4000 to £6000 each under the hammer, and the want of appreciation of this work, probably the most artistic ever produced by a designer and craftsman, is sufficiently exemplified by the statement that at the Stowe Sale in 1848 (which, by-the-by, lasted thirty-seven days) two of

BOULLE'S FAMOUS ARMOIRES

were sold for £21 and £19 8s. 6d. respectively. We are accustomed now to see the bids at Christie's advance by guineas, by fives and tens, and it is amusing to read in these old catalogues of marqueterie tables, satinwood cabinets, and other articles being knocked down in 1830 to 1845 for such sums as 6s., 15s., and occasionally £10 or £15. Sale on February 25th and 26th, 1841, lot 31—a small oval table, with a piece of Sevres porcelain painted with flowers, 6s." It is highly probable that had this piece of furniture been sold to-day it would have realized over £100. Prices have certainly vastly improved during the last fifty years, and a genuine love for the good and beautiful in home furniture is daily growing; cheapness is not the one great thing now desired, and people are beginning to understand the words of Mr. John Hungerford Poller (whose works on furniture should be read by all students), who wrote, "Beauty which is created by the hand of man is not the clever application of mechanical forces or of scientific inventions, but is brought to light, whether it be a cabinet front or the Venus of Milo, often with pain, always by the entire devotion of the labour, the intellect, the experience, the imagination and the affection of the artist and workman."

* A paper read before the Auctioneers' Institute of the United Kingdom.

MUNICIPAL BUILDINGS IN LEEDS.

EXTENSION SCHEME.

LEEDS TOWN HALL is one of the most stately structures in the country; indeed, it is seldom that we find a modern building of more beautiful proportions anywhere. Looked at from whatever point it is imposing. There is nothing insignificant, little that is unworthy—it is majestic, strong, inspiring, like the lions that guard it. This uniform grandeur is one of its most striking characteristics. All this may be averred, says the Leeds Mercury, though we have not yet seen the building to the greatest advantage. It is a case in which "distance lends enchantment to the view." We require to get farther back than the limits of Victoria Square in order to obtain all the gratification of the eye which the artist designed to afford. Then, are not some of its surroundings a reproach—an evidence of indifference to artistic unity? Standing in the Square, we have on the one side

A TRIUMPH OF MODERN ARCHITECTURE;

on the other there has been allowed to remain what would discredit many a colliery village. Whilst nothing was left undone to make the exterior of the Town Hall attractive, it seems strange that internally there should have been a manifest disposition to merely serve the purpose. Victoria Hall has certainly fine features and rich embellishment, but elsewhere the fittings and furnishing of the building are cheap and out of harmony with the outside magnificence. In the corridors and on the staircases there is nothing to please the eye. Anyone who has seen the buildings devoted to municipal administration in Birmingham, Manchester, Glasgow, and even not a few smaller places, must feel that the Town Hall of Leeds lacks much to be desired. But the

DEFECTS RANGE BEYOND THE DECORATIVE.

Those more particularly concerned are becoming disagreeably conscious that the accommodation in the Town Hall for the transaction of the business of the city is quite inadequate, even supplemented by that of the Municipal Buildings. Measures for remedying the deficiency ought not to be long delayed. Under the conditions the only feasible plan seems to be that suggested at a meeting of the City Council—to remove the Assize Courts, and adapt the space thereby gained to the municipal requirements. New courts would have to be erected. The acquiring of a suitable site for such a structure suggests the carrying out of a more extensive improvement. It must be generally admitted that the Public Free Library, occupying the upper floors of the Municipal Buildings, is in the wrong place. Is it too much to hope that the city would be disposed to erect a building which should comprise not only a Free Library but a public reading-room, and likewise an Art Gallery? As to

THE EXISTING ART GALLERY

and reading-room, is it unreasonable to anticipate that Leeds will be disposed to take the place she ought to do as a patron of Art, that she will seek to emulate other cities in giving Art instruction? The surroundings of our noble Town Hall, as has been remarked, are to a large extent unsightly. More especially is this so on the Park Lane side of Victoria Square. From the corner of East Parade down to the warehouse of Messrs. Arthur and Co. the existing buildings ought to be cleared away. The site of the lower range—namely, from the one entrance to Park Square to the other—it has been suggested, would form eligible ground for the new Law Courts, and also for a new Free Library and Art Gallery.

THE foundation stone has been laid at Penarth of a bridge to span the Taff Vale Railway, and carrying the roadway over from Railway Terrace and Grove Place. The bridge will be 38ft. in width, and span four railway lines, and will consist of steel girders mounted on masonry. The contractor is Mr. W. T. Taylor, of Pontypridd.

Legal.

AN ARTESIAN WELL DISPUTE.

In the Queen's Bench Division the case of *Thom v. the Urban District Council of Shanklin* has been heard before Mr. Justice Kennedy, without a jury. It was an action by an artesian well engineer against the defendants to recover £253 15s., alleged to be due to him in respect of a contract made with the defendants to continue the boring of an artesian well at Upper Oxlease, near Shanklin, for the purpose of supplying the district with water. In pursuance of the contract the plaintiff continued the boring to a depth of 460ft., when, by direction of the Local Board, he discontinued the work. When the plaintiff had bored to a depth of 330ft. he proposed to insert 4½in. tubing. That was objected to by the Water Committee of the Shanklin Local Board, on the grounds that the tubing was too small. The plaintiff continued the boring for 130ft. without inserting any tubing, and in respect of that length the defendants refused to pay, on the grounds that the work had not been completed according to the contract, which provided that in all matters relating to the contract the decision of the Board's engineer should be binding on the Board and the plaintiff; that payment was to be made by instalments upon the certificate of the engineer that the work had been done to his satisfaction; and that the engineer had not certified that the amount claimed was due to the plaintiff.—Mr. Justice Kennedy gave judgment for the defendants with costs.

AN ARCHITECT'S CERTIFICATE FINAL.

In the case of *Buckland v. Trood*, heard recently in the High Court, the plaintiff claimed as assignee of Messrs. Garner and Lovelock, a firm of builders. In 1896 Messrs. Garner and Lovelock entered into an agreement with the defendant to make some alterations on the defendant's premises. It was provided by the conditions attached to the specification that the works should be executed to the full satisfaction of the architect, and that payment should be made upon the certificate and at the discretion of the architect. On February 5th, 1897, Messrs. Garner and Lovelock assigned to the plaintiff all moneys due to them under this agreement. The first point in dispute was as to various items of the work, amounting in all to £36 17s. 7d., which the defendant alleged to be negligently executed. As to the second point, the question was whether an item of £106 3s. 6d., for granite work executed by a Mr. Whitehead, was due from defendant to Whitehead or to plaintiff's assignors.—Mr. Dickens, Q.C., for the plaintiff, contended, on the first point, that the architect's certificate was final. As to the second point, Whitehead was a sub-contractor under Garner and Lovelock, and had no direct contract with the defendant.—Mr. Greene, Q.C., for the defendant, argued that in all the reported cases where an architect's certificate had been held to be final there had been words to that effect in the conditions, which was not the case here. As to the granite work, it had been agreed by all parties that that portion of the agreement should be cancelled and the work executed by Whitehead for defendant and not for Garner and Lovelock.—After hearing the evidence, Mr. Justice Darling said that, as to the first point, he could not admit evidence contradicting the architect's certificate. That certificate was final, and the defendant was not entitled to go behind it. On the second point he had no doubt that the arrangement by which Whitehead took over the granite work from Garner and Lovelock was entered into with Garner's consent, and on that point the defendant succeeded.—Judgment for the plaintiff for £36 17s. 7d. and costs.

THE Weser, with 563 loads of Jarrahdale Jarrah aboard, has arrived at Grimsby, and the Helena Mens, with 548 loads of the same timber, has arrived at Hull, both vessels to the order of Messrs. McLean Bros. and Rigg Limited, 1, Fenchurch Avenue, London, E.C.

Professional Items.

ABERDEEN.—The work of erecting the new Kittybrewster School is proceeding rapidly. The building is of three stories, and consists practically of two blocks built parallel to each other, but under the same roof. The staircase occupies the centre, between the main parts of the building. The front and side elevations are of hammer-blocked Kemnay ashlar, with a picked course of Kemnay and three courses of rustic, in the darker shade of Tillyfourie, at the base. The back elevation is of sneaked ashlar work. The main windows and the two main doorways are arched, the arches being sprung from short columns.

At a meeting of the School Buildings Committee of the Aberdeen School Board, the question of the appointment of an architect for the new Mile End School was considered. The names before the committee were those of Mr. A. Marshall Mackenzie, A.R.S.A., Mr. A. H. L. McKinnon, Messrs. Jenkins and Marr, and Mr. James A. Souttar. The committee decided by a majority to recommend the Board to appoint Mr. McKinnon.

CLONTARF.—The new station at Clontarf between Dublin and Rabeny, has been opened. It is situated at the north side of the railway bridge over the Howth Road leading from Dublin to Howth, and is solidly constructed of brick. There are two timber platforms, each 450ft. long. On the east side of the line on the low level there are spacious station buildings, containing waiting rooms, a booking hall, offices, lavatories, and a residence for the stationmaster. On the upper platform are a waiting room and ticket collector's office, and on the down platform a waiting room, lavatory &c. Access to the platforms will be obtained by inclined approaches, and the steps have been specially constructed to make the access and exit easy.

DUNDEE.—A party of forty students a few days ago visited the following buildings in Dundee, under the leadership of Professor Gourlay:—The Royal Arch, the old Custom House, the new Royal Bank, in course of construction by Messrs. Peddie and Washington Browne, architects, Edinburgh; St. Paul's Episcopal Church, erected 1853 to 1865 by the late Sir Gilbert Scott; the Albert Institute, by the same architect; the Victoria Gallery, by Mr. Wm. Alexander, the city architect; the new "Pearl" Insurance Offices by Messrs. C. and L. Ower, architect; the Scottish Provident Insurance Offices, new bonded warehouses in the Leagate, new Nurses' Home and Operation Theatre at the Royal Infirmary, all by Mr. Alex. Johnston, architect, Dundee; the new Post Office, by Mr. W. W. Robertson, architect, H.M. Office of Works, Edinburgh; the old Steeple, erected about the middle of the fifteenth century; the old Cross of Dundee, near the Steeple; and the East Church, where the new east window designed by Sir E. Burne-Jones, and executed by Messrs. Morris and Company, was much admired. Another party of former and present students visited Durham for a few days at Easter to measure and sketch the cathedral, the castle, and other buildings in the city and its vicinity, including Finchale Abbey.

ELGIN.—The directors of the Great North of Scotland Railway Company have resolved to construct a new station at Elgin. The plan which have been prepared by Mr. Barnett, the Company's engineer, show a great increase in the platform accommodation, one entirely new platform being intended for the accommodation of the down line. There will be about 400ft. of platforms roofed in with glass and iron. The plans also show considerable additions to the waiting room accommodation and a new refreshment room. The accommodation for the station agent and staff is ample.

FLUSHING, FALMOUTH.—The contract for the renovation and re-seating of the Wesleyan Chapel, Flushing, has been let to Mr. W. J. Moyle, of Chacewater. The whole of the

chapel and gallery will be re-seated in red deal. The architect is Mr. Horace W. Collins, of Redruth.

GARELOCHHEAD.—A new public hall has been erected at Garelochhead. The architects were Messrs. H. and D. Barclay, Glasgow, and the contractors Messrs. R. Aitkenhead and Sons, Greenock; Hutchison and Grant, joiners, Glasgow; James Macredie, plasterer, Greenock; James Maitland, slater, Helensburgh; James Sheddou, plumber, Row; and James Arroll, painter, Garelochhead. Mr. J. G. Wagstaff, Duckenfield, Manchester, supplied the heating apparatus.

KINGSTOWN.—A large mansion and out-offices is in course of erection at Glenageary Road, Kingstown, Co. Dublin. The plans and specifications were prepared by Mr. Cecil Orr, of Dublin; and Mr. Henry Pemberton, builder and contractor, of Killiney and Ballybrack, is to carry out the work, at a cost of about £6000. For the alterations at the Kingstown Town Hall, to cost £700; and for the erection of new municipal offices, at a cost of £6600, Mr. Joseph Berry, C.E., township engineer, prepared the plans, and Mr. Henry Pemberton will carry out the work.

KNOTTY ASH.—A new organ and screen have been erected in St. John's Church, Knotty Ash. The work was carried out from the designs of Mr. Charles E. Deacon, architect, of Liverpool. The organ, which is of large compass, and fitted with pneumatic action, is enclosed in a massive and elaborately carved oak case designed in harmony with its surroundings, and being supported upon carved canopy, springing from the screen, beneath which runs the whole length of the choir stalls. The organ has been made by Conacher and Co., of Huddersfield, whilst all the oak work is from the studios of Messrs. Harry Hems and Sons.

LANCASTER.—The scheme for widening Church Street, Lancaster, has advanced to the commencement of the demolition of the old property behind the "Nag's Head" inn. This inn, and the shops adjoining, it is proposed to set back, giving at the Calkeld Lane end an additional space of 12ft., tapering to 2ft. 6in. at the other end. The premises will be brought up to date in their general arrangement and appearance, the re-erections being of punched stone, with boasted dressings, mouldings, and pediments, and will harmonise with the property on the opposite side of the street. The total contracts are £3212.

LEAMINGTON.—The tender of Messrs. G. F. Smith and Sons, of £6760, for carrying out the work in connection with the extension scheme at Warneford Hospital, which embraces the building of a new wing constituted on the pavilion system, containing two wards, each with fourteen beds, and connected by a bridge with the block opened in 1892.

LEEDS.—A new Wesleyan school-chapel has been built at Lady Pit Lane, Beeston Hill. The building is of brick, with stone dressings. Mr. G. F. Danby was the architect.

LEICESTER.—The foundation stones of the new Primitive Methodist Church and Schools have been laid. The church will accommodate 900 persons, 600 on the ground floor, and the remainder in the gallery. The windows are of tracery work, and glazed with leaded lights in tinted cathedral glass. The schools are arranged in three departments: infants, junior, and institute. The large assembly room is on the ground floor, and is 11ft. wide by 78ft. long. The institute assembly room is on the first floor, and is 60ft. long by 30ft. wide. The walls are faced externally with best pressed bricks, with fine white collington stone dressings. The staircases are of Yorkshire stone, with glazed brick dados. The style of Architecture is Gothic. A limited number of architects were asked to prepare plans in competition, and those of Mr. Harper, Nottingham, was unanimously adopted.

and the works are being carried out under his superintendence. The builders are Messrs. Langton and Son, of Enderby. It is estimated that the cost of the site and building will be covered by £8500.

MARSDEN.—The enlarged chapel and school and new suite of vestries connected with Marsden Wesleyan Chapel have just been opened. The new buildings are built of local stone, and in character with the church. The work has been carried out by the following contractors:—Masons and excavators, Messrs. Whitehead, Fielding, and Bradbury; carpenter and joiner, Mr. James Schofield; plasterer, painter, and concreter, Mr. John Bottomley; plumber and glazier, Mr. Frank Goodall. The plans have been prepared by Messrs. Kirk and Sons, of Huddersfield and Dewsbury, under whose superintendence the works have been carried out.

OLD KILPATRICK.—After being closed for over three months, the Old Kilpatrick Parish Church has been reopened. Amongst the additions to the church is an organ, pulpit, solid oak carved communion table, font of blue Ayrshire stone to match the pulpit, and a peal of bells. The church has been entirely repainted, and new and improved heating apparatus put in. A window of stained glass, representing the Ascension, has been placed in the centre, while two other windows, representing the four evangelists, have been added. Mr. David Andrew, architect, Glasgow, designed the new apse, pulpit, font, &c.

PORTSMOUTH.—Considerable progress is being made on the new blocks of the Portsmouth Hospital, although work on the sanitary blocks was delayed by the non-arrival of the specially made glazed bricks. The main ward buildings of the two blocks A and C are up, and the timbers for the roof of A block are in position, while block C is nearly ready for the roof. Considerable saving has been effected by the substitution of concrete fire-proof flooring with iron girders, for the earthenware lintels and more numerous girders at first specified. Not a single wooden joist will be used throughout the building. The construction and fitting of the heating apparatus has been entrusted to the Portsmouth Water Fittings Company. It has been also decided to go on with the erection of the staircase wings to blocks A and C, which were cut out bodily when the first estimates were first reduced. At the present rate of progress it is believed that the blocks will be completed in about a year's time.

STRATFORD-ON-AVON.—Lloyds Bank (Limited) are about to erect new bank buildings upon the site of their present premises at the corner of Bridge Street and Union Street, Stratford-on-Avon. The plans of the new bank, which have been prepared by Mr. J. A. Chatwin, of Temple Street, Birmingham, show a much larger structure. The elevations in Bridge Street and Union Street will be of Bath stone, and the principal entrance will be at the corner of the streets named, with oriel window projecting over, and surmounted by a short spire. The corner entrance will be recessed, and the oriel window over—a feature of the building—is carried by groins springing out of the keystone of the doorway. There are carved panels between the corner windows. The lower range of windows in Bridge Street will have pilasters and columns between, the middle range contain mullions and transoms, while the top range will be of a more ornate character. There will be six large windows on the ground floor of the banking room, which will be 38ft. by 20ft. All the bank fittings will be of mahogany, and the building will be lighted and ventilated by an inner court, extending the full height of the building, cased with white brick. The style adopted is Renaissance. A low ornamental palisading will protect the stonework from being scored scratched. The builders are Messrs. Collins and Godfrey, of Tewkesbury.

Views and Reviews.

BERLY'S ELECTRICAL DIRECTORY, 1898.

Berly's Universal Electrical Directory for 1898 has just made its appearance. The present volume comprises nearly 1200 pages, and contains about 24,000 names associated with the electrical and kindred industries. Financial information, telegraphic addresses, and telephone numbers are among the new features; and the work shows an addition of about seventy pages, with an increase of over 1100 names. Of its utility there can be no question.

"The Universal Electrical Directory (J. A. Berly's), 1898." 6s. H. Alabaster, Gatehouse, and Co.

"THE STANDARD ELECTRICAL DICTIONARY."

Since the publication of "The Standard Electrical Dictionary," by Mr. T. O'Connor Sloane, neither the student nor the novice has reason to be afraid of the formidable terms and phrases with which the science of electricity has furnished us. The work, the second edition of which is now published, has been thoroughly revised and brought up to date, and includes all the new terms and applications that date from the discovery of what is commonly known as the Röntgen rays. The book, which is liberally illustrated, is a useful and comprehensive work, and certainly deserves something better than the very cheap-looking and ugly cover in which it appears.

"The Standard Electrical Dictionary." By T. O'Connor Sloane. Second edition, with appendix to date. 7s. 6d. Croshy, Lockwood and Son.

"LATHE CONSTRUCTION."

We have received a set of twenty-four coloured plates on "Lathe Construction," by Paul N. Hasluck. The drawings, which are admirably reproduced, are clear and beautiful examples of draughtsmanship, and will commend themselves to all users of the lathe, or to manufacturers of lathe machines. There is, however, an entire absence of letterpress, which we regard as a regrettable omission. The value of the work to the student would have been enhanced by a short descriptive paragraph of each plate. Probably the work is intended to assist the study of some book on the lathe, as, for instance, Mr. Hasluck's "Lathework," and in this connection it will be invaluable.

"Lathe Construction"; 24 coloured plates drawn to scale by Paul N. Hasluck. 6s. Cassell & Co.

"PAINTING ON GLASS AND PORCELAIN."

In "Painting on Glass and Porcelain," the author has dealt very exhaustively with the technical as distinguished from the artistic side of his subject, the work being entirely devoted to the preparation of the colours, their application and firing. For manufacturers and students it will be a most valuable work, and the recipes which appear on almost every page form a very valuable feature. The author has gained much of his experience in the celebrated Sevres manufactory, a fact which adds a good deal of authority to the work. The book, which has been greatly enlarged, is excellently printed, and a very clear and lucid translation has been made by Mr. Charles Salter.

"Painting on Glass and Porcelain." By Felix Hermann. Second, greatly enlarged, edition, 10s. 6d. Scott, Greenwood, and Co., Offices of the "The Pottery Gazette."

The fabric of the new church of St. Margaret, Burnley, is now approaching completion, the roof being on, and the bell in position.

The Fishery Board for Scotland has approved of a plan prepared by Mr. John Rust, city architect, of a laboratory to be erected at the Bay of Nigg in connection with the Board's new fish hatchery.

It is announced that the Inner Temple Buildings Bill, in which powers were sought to build on the frontage adjoining the Thames Embankment, has been rejected by the Select Committee of the House of Lords.

Under Discussion.

THE GLASGOW ARCHITECTURAL ASSOCIATION.

Before the Glasgow Architectural Association Mr. George E. Walker, the Association travelling student, read a paper descriptive of his tour in Yorkshire and Lincoln. Pencil sketches made during the journey were exhibited.—The Rev. David Watson delivered a lecture on "Puis de Chevannes, and the Mural Decoration of Municipal Buildings in France" at another meeting of the Association. The lecturer characterised Chevannes as the greatest mural decorator of modern times, and expressed the hope that the municipality would in the decoration of the municipal buildings, employ Chevannes to initiate the scheme of mural decoration.

BUILDING STONES.

Before the members of the Edinburgh Architectural Society, recently, a lecture was given by Mr. John Kennedy on "Building Stones: their Preparations and Use." The lecturer insisted on the necessity of architects knowing more about the stones they employed, and described and classified building stones, their various dressings, and their special purposes.

PROTECTION OF WATER SUPPLIES.

Mr. A. Kent, in reading a paper on "The Protection of Water Supplies," before the North-Western and Midland District of the Sanitary Inspectors' Association, said that there was no part of the work of a sanitary inspector which exceeded in importance that of the water supply, as the health of a whole community depended upon a pure supply. Public bodies, especially in rural districts, had to contend with great difficulties, the procedure necessary to get a good supply of water being cumbersome, and he contended that more extensive powers were necessary in order that the health of the people may be better safeguarded. Power should be given to local authorities and their officers to enter waterworks from which the public were supplied in order to take samples for analysis.

BRITISH ARCHEOLOGICAL ASSOCIATION.

At the ninth meeting of the session, Dr. Winstone in the chair, Mr. Way exhibited an interesting collection of antiquities recently discovered, consisting of a Romano-British vase, quite perfect, and in fine condition, a food vessel, an urn, several small glass bottles, and the bones of the forearm of a young female, together with a finger ring and several bronze armlets which still encircled the bones at the time of discovery. These were all found in Southwark, as were also the following articles, viz., an iron seal of the thirteenth century, made for some private owner for sealing the conveyance of his land, and two curious examples of the toys made in the shape of a cock, which superseded the inhuman use of the living bird in the Shrove-tide sport of cock throwing. Mr. Way also exhibited a British head and a bone spear-head found in Thames Street. A paper by Miss Russell, upon "The characters of Wolsey's inscription now at Oxford, compared with older ones in Scotland," was read by Dr. Birch.

INSTITUTION OF CIVIL ENGINEERS.

The annual dinner of the Institution of Civil Engineers was given recently in the hall of the Middle Temple. The chair was occupied by the president, Sir John Wolfe Barry. The Master of the Rolls proposed "The Civil Engineers," and said that the practical application of truth to the daily work of life was the common work of both professions. The forces of human nature, however, were more

inscrutable than those of nature with which the engineers were confronted. He was astonished at the vigour of so young a Society. Seventy years ago, he was informed, there were only 156 members of the Society, which had an income of £456. Now the membership was 7000, with an income of £20,000. The institution had not, like others, gone mad on the subject of examinations, which, however valuable in some respects, were by no means infallible tests of the real value of a man.—The President, in acknowledgment, said that the institution was never more flourishing than at the present moment. It was true that the society had not overrated the value of examinations, but they had instituted examinations of such a degree and kind as would secure competency in the profession.

ST. PETER'S CHURCH, ST. ALBANS.

At a meeting of the St. Albans and Hertfordshire Architectural and Archaeological Society recently, a paper by Mr. W. Carey Morgan, on St. Peter's Church, was read in the author's absence. The founder of the church, he said, was Ulsinus, the sixth Abbot of the great monastery of St. Albans, who governed here in the reign of King Ethelred, A.D. 950. Ulsinus built a church upon each of the main roads to his monastery—St. Michael's to the west, St. Stephen's to the south, and St. Peter's to the north. No record existed affecting the last for nearly 200 years after its foundation. As early as the beginning of the fifteenth century, and probably very much earlier, there existed in the churchyard of St. Peter's, besides the cross of Roger de Stoke, two small chapels and probably a hermitage for an anchoress. One of these chapels was known as the charnel chapel, traces of which have been discovered, and the other the "Cornwall's chapel," the site of which has not been fixed. Of the Saxon fabric of the church they had no knowledge, but it was clear from the quantity of late Norman moulded stones which were found during Lord Grimthorpe's recent alterations, that it was rebuilt in less than 200 years. It was, however, difficult to arrive at any definite conclusion as to the date of the tower and the eastern portion of the church before they were rebuilt at the beginning of the present century. He concluded with a criticism on the old glass in the church windows.

WATERSHED AREAS.

At a recent meeting of the Sanitary Institute, held at the Parkes Museum, Margaret Street, W., Mr. E. E. Middleton delivered a lecture, entitled "The Desirability of Making Watershed Areas and Sanitary Districts Coterminous." The lecturer said that consequent on the increase in the size of our large towns the demand for water had led to the upsetting of all preconceived ideas as to the sources from which supplies should be obtained. All the evidence as to water supply and water pollution showed that if areas of supply were to be safeguarded, if rivers were to be preserved from pollution, if the millowners were to obtain the utmost benefit of the power at their disposal, but without injury to the general interests of the population, and if the navigation, if there be any, was to be maintained, the present system of divided authority should be abandoned and a combined general policy should be substituted for it. At present every authority was in conflict with its neighbour. He was strongly in favour of dividing the country into watershed areas for purposes of water supply and drainage, which areas could be coterminous with sanitary districts. In what manner the watersheds should be mapped out was too large a subject to deal with in a single address. The constitution of the watershed authority was also a matter of great complexity, but the body should represent every class and interest, and its duties should consist in the conservation of the river, in the maintenance of its purity, including that of the tributaries, in the encouragement of combination and efficiency in sewage disposal, and in the prevention of floods.

Enquiry Department.

"SPECIFICATION" Enquiry and Legal Departments.

The replies to queries in the "Enquiry" and "Legal" Departments of the "Builders' Journal" being necessarily limited by consideration of space, readers who wish to obtain more complete and exhaustive answers are recommended to apply to the "Legal" and "Enquiry" Departments of "Specification."

Legal advice and opinions on Professional and Constructional matters will promptly be sent through the post.

Rules with regard to these enquiries will be found on page 2 of "Specification."

Terms of Subscription:—12s. per annum, payable in advance, for the first four quarterly numbers, carriage paid to any part of the United Kingdom. Subscribers abroad are requested to remit an additional 2s. 6d. to cover the extra cost of carriage.

I. C. B.—Will you please forward your address.

BUILDING SURVEYOR.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be glad if you would let me know, through your Enquiry Department, whether you consider the knowledge gained in passing the final R.I.B.A. exam. would be sufficient to pass the Institute exam. for building surveyor under local authorities. —Thanking you in anticipation, I am, dear sir, yours faithfully, M. L.

The knowledge gained in working up for the final R.I.B.A. examination should be sufficient to pass that for building surveyor under a local authority, with the exception of a knowledge of the Building Acts, which is, we believe, not compulsory for the final R.I.B.A., but which is so for that of building surveyor. In the Kalendar of the R.I.B.A. you will see what is required for both examinations.

DEPRECIATION AND DAMAGES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—A, the contractor for B, is carrying out extensive building operations to property adjoining those which belong to C, and in working to the drawings, excavates on B's premises and close down by C's wall to such a depth as to cause the wall belonging to C's establishment, the foundations of which are only about 4ft. below floor level, to crack, damaging plaster, framing of window sills, &c., owing to the foundations settling. A has promised to make all good. Cannot C claim compensation for depreciation as well as make A put the damage right? If the extra depth of excavations on B's property had not been done, there is no doubt the damage to C's property would not have taken place.

The architects for B hold the contractor responsible for all damage to adjoining property. A has been told that compensation would be required, but he will not entertain the idea.

Please say if I can compel A to give a reasonable amount for compensation.—Yours faithfully, "REVIEW."

Our solicitor's opinion on the case is as follows:—Upon your statement of facts, C is entitled, in addition to having all damage done made good by A, to damages by way of compensation for depreciation, provided the property has suffered depreciation through the act of A. Before, however, C commences proceedings, he should be satisfied that he can prove that his property has been depreciated in value by A's act.

STRESSES IN ROOFS.

To the Editor of THE BUILDERS' JOURNAL.
DEAR SIR,—Would you kindly explain the method of finding the members in tension, and so in compression, for roof trusses, girders, &c.—Yours respectfully,
G. S.

The method of determining graphically the nature and amount of the stresses in trusses, girders, &c., is to construct stress diagrams, by drawing parallels to the various members, and tracing the strain from a known point: each design requiring a separate and special stress diagram. The following rule briefly may be found of use to ascertain the nature of the stresses in any simple system of framing. From the point where the weight or pressure acts, draw a line in the direction that the pressure is applied, and let the length of the line, measured by any scale of equal parts, denote the pressure in lbs., wts., or tons, as the case may be. From the extremity opposite to the point on which the pressure is exerted, draw lines parallel to the pieces which sustain the strain. The line parallel to the one piece will necessarily cut the other piece, or its direction reduced, either within, or without, the framing. If the line cuts the piece itself, or its direction produced within the framing, then the piece so cut is in compression, but if it cuts the direction produced beyond the framing the piece is in tension. To make this clear, take the example (Fig. 1) of

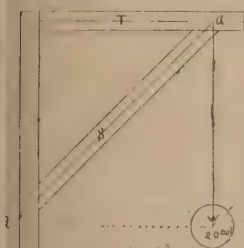


FIG. 1.

Fig. 1, carrying a weight at its extremity, a being the point where the pressure acts, draw a-w in the direction of pressure, make a-w equal to the weight to scale one-tenth, draw a-b and a-c parallel to the pieces sustaining the pressure, produce the neutral direction lines of pieces S and T to e and d; it will be seen that S is cut within the framing, therefore by the rule it is in compression whilst T is cut without the frame, and is in tension. In Fig. 2 the application of the method to a roof truss is

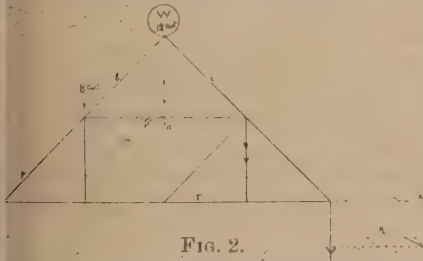


FIG. 2.

shown. First, to discover the stress in the principal rafters, draw the line a-w in the direction at the weight would move if free, make it equal to twelve parts to scale, draw a-b and a-c parallel to the rafters; these lines cut the rafters on each side within the frame, proving them in compression. To find nature of stress in straining beam, set off on the queen-post a load to scale, through this point draw parallels to straining beam and principal rafter, these cut both members within, showing both in compression. To find nature of stress in the tie beam T, produce direction of tie beam and principal, upon these set off the thrusts to scale; the horizontal thrust is equal to half of the inclined thrust equal to a-c; complete a parallelogram, the diagonal R is the resultant. This force is counteracted by a similar force opposite, and results in a downward pressure at L. Draw the second parallelogram, the side cutting the tie beam produced outside the framing shows it in tension, the side cutting the neutral axis of the wall within shows it in compression. The remaining members are to be dealt with in the same manner.

THE N.A.P. WINDOWS.

[NATIONAL ACCIDENT PREVENTION WINDOWS.]

IT has been a long-standing reproach to the Profession that the windows of our houses have been designed in such manner as to become death-traps to the unfortunate housemaid—and even the more experienced professional cleaner—or, where these have been considered in the use of inside-opening casements, the essentials of a good window, that it should be wind and water tight, have been but indifferently fulfilled. But thanks to the energy and business aptitude of the N.A.P. Window Co. Limited, of 159, Victoria Street, Westminster, who have become the proprietors of some twenty reliable patents relating to the convenient and safe cleansing of windows of every description, winnowing the inventive wheat from the chaff, and thereby earning the gratitude of busy architects, this reproach need no longer exist. The handsome and profusely illustrated catalogue issued by the Company contains within its 450 pages working drawings and details, to large scale, of the numerous varieties of their fittings, adapted for cottage, mansion, hotel, hospital, or public school, interspersed with suggestive hints and time-saving forms of specification relative thereto that will be especially welcome during the extremely necessary, but very ungenial task of translating one's ideas into builders' instructions. Not the least attractive portion of this interesting volume is that embellished with the graceful designs in wrought iron work, contributed by Mr. George Haité, whose valuable co-operation has been secured by the Company for this department of their business. We can only briefly refer to a few of the more important specialties illustrated. The first of these is the N.A.P. patent revolving and sliding sash window. This is the ordinary double hung sash frame provided with the Company's fittings, which enable both sashes to be turned inside-out on pivots, in addition to sliding vertically, thus permitting the outsides to be cleaned within the room. They may also be fixed louver fashion, at any angle desired for ventilating purposes. The weather-proof qualities of the sash have been ensured by an ingenious, corrugated joint between the two portions of the stiles, which interlock with each other, by giving a few turns to a couple of milled-headed screws, projecting slightly from the moulded edge of the stile. Any intelligent joiner could in a few hours transform an existing common-hung sash into a revolving one by aid of the fittings supplied, all the alteration necessary being the cutting off of a 1/4 in. slip from the back edge of each stile, shooting the edge with the corrugated plane provided, and preparing two slips to match to supply the places of those cut off. Then screw on the fittings, and the thing is done. Nothing could be simpler. And the cost? Roughly, half-a-guinea a window. The "Weightless" window frame (also with sliding and revolving sashes) is another useful and ingenious novelty. Here the usual boxed frame is dispensed with and a solid jamb substituted, as there are no weights to be accommodated, the sashes being made to counterbalance each other by hanging them to a single copper chain, passing over a purpose-made pulley sunk in the face of the lining. The comparative gain in the "sight" opening by this arrangement in a Venetian frame is 1 1/2 in. on each mullion; at the same time the frame is stronger and cheaper to construct. Another arrangement for converting a sliding sash temporarily into a casement, for cleaning purposes, is the "Top Bolt" patent. This method dispenses with the cutting of the stiles, the only alteration required being two fine saw cuts through the guard and parting beads, at about the height of the sash apart, and the hanging of the cut portions with small brass hinges. An extremely useful invention is the "Passable Hopper Cheeks" for hospital and school frames. These ventilating hopper frames are always receptacles of dust and difficult to clean, but, with the patent fitting, the moveable pane can be brought down over the lower window and cleaned with ease. No less than eight varieties

of iron and steel patent casements, as supplied by the Company, for various situations, opening both inwards and outwards, are fully illustrated in the catalogue, which we advise every up-to-date architect to become possessed of. The price, we note, is five shillings.

Trade and Craft.

A CORRECTION.

In referring, in our issue of 6th inst., to certain buildings wherein the Key method of warming and ventilation has recently been installed, the Yoker School at Glasgow was, by a typographical error, styled "Gothen." Our Glasgow readers would, no doubt, be a trifle puzzled.

MESSRS. DOULTON AND CO.

Messrs. Doulton, of Lambeth, S.E., the well-known potters and sanitary engineers, have removed their Manchester depot to Temple Chambers, St. James's Square, Manchester, where they have opened commodious showrooms for the display of their manufactures. This change of address has been caused by the large increase in the local demand for the Company's productions. Prominent in their showrooms is a fine display of glazed faience fireplaces and mantles, showing a variety of beautiful designs and colours. Amongst the sanitary fittings is a fine display of baths of the most modern style of design—specially noticeable are the vitreous enamelled baths. Lavatories of a great variety and form, urinals and slop-sinks are a leading feature in these showrooms. A variety of the manufactures are shown which are all of the high-class nature associated with this firm. Architects and all connected with the building trade will find such showrooms as these of great service to them.

A QUESTION OF CONTRACT DEPOSITS.

An interesting case to contractors was recently heard in the Queen's Bench Division. The plaintiff, Mr. Alfred Haslett, a contractor, claimed from the North Sunderland Railway Company a sum of £2611 5s. 6d. for work and labour done and materials supplied, and also damages for breach of contract.—Mr. Lawrence, counsel for the plaintiff, stated that the claim arose out of the construction of a railway for the defendant company. On May 4th, 1896, the plaintiff entered into a contract with the defendants to construct a railway for them from Sunderland to Seahouses, a distance of four miles, for £24,500. The contract was not actually executed, but it was adopted by the board of directors of the defendant company, and the plaintiff was authorised to commence the work. On May 14th the first sod was cut, and the plaintiff began making the line, erecting a quantity of machinery and bringing materials for the purpose. It was a term of the contract that the plaintiff should on its execution deposit with the defendants a sum of £1000 as security for its due performance, and this amount was to be repaid by instalments as the line progressed. It was also a term of the contract that the defendants were to pay the plaintiff £500 seven days after the commencement of the work and another £500 fourteen days after that event. It so happened that the plaintiff, contrary to his expectation, had been unable to raise the £1000 to deposit with the defendants, and so the contract was never executed. The work, however, was carried on by the plaintiff right up to September, 1896, when the defendants gave him notice to leave off, and terminated the contract on the ground that the payment of £1000 by him was a condition precedent to the contract, and as he had not paid that sum they were entitled to withdraw from the agreement.—Mr. Boyd, for the defendants, said that they were quite willing to pay on a quantum meruit for work actually done by the plaintiff, and it had been their desire that the matter should have been referred for the purpose of ascertaining what amount was reasonably due.—Mr. Justice Mathew held that the condition that the

plaintiff should pay £1000 deposit was a condition precedent, and was vital to the contract, and therefore the plaintiff could not recover damages for breach of it. The plaintiff would be entitled to payment for what work he had done, and he thought counsel would be able to settle the amount.—After a long consultation terms were agreed on, and judgment was entered for the plaintiff for £1500, less £200 already paid to him, and £200 brought by the defendants into Court.

MESSES. PEACE AND NORQUOY.

While our politicians are talking about the "open door" in the Far East, the problem, scholastically, may be said to be one not so much of doors as of partitions. There are often cases in which the fact of a room being of wide superficial area is a positive disadvantage instead of a convenience. And yet the same place in which the area to-day is a disadvantage, is pressed to the extreme on the morrow in meeting increased requirements. The great question, of course, is the economical division of the space for the one occasion in such a manner as to permit of a speedy return to the wider area of uninterrupted space when the changing conditions demand such an arrangement. The problem was once all but insoluble, but now it has been for some time one that need perplex nobody. The patent folding partitions of Messrs. Peace and Norquoy, of Manchester, meet a popular demand. They fold up so compactly as to be in no way obtrusive, and when the time comes for use, their erection is simplicity and ease itself. A schoolmistress is as well qualified for the work as a carpenter. The patentees have won several medals and diplomas by the simplicity and effectiveness of their invention, which has been adopted all over the United Kingdom and abroad also. Among the buildings which have been most recently fitted up with Messrs. Peace and Norquoy's partitions are: St. Thomas' and Terrace Road New Schools, Swansea; Northumberland Terrace Roman Catholic Schools, Liverpool; Day Industrial Schools, Edinburgh; New Central Schools, Pitlochry, N.B.; St. Michael's Schools, Wantage, Berks; seven partitions in five schools for the Glasgow School Board, and five partitions to Chapter Room, Masonic Temple, Johannesburg, South Africa. We are informed that during the past four years these partitions have been fixed in more than 700 schools, colleges, lecture halls, public buildings, hotels, board rooms, &c. They have been adopted by over 130 school boards, and have been very generally recommended by architects throughout the Kingdom.

MESSES. WAYGOOD AND CO. LTD.

The name of "Waygood" has come to be regarded as almost synonymous with "lifts" and "cranes." For many years the firm has pioneered in the manufacture of hydraulic machinery of varied descriptions, and their catalogues to-day may be regarded as revealing the most perfected knowledge in their especial province. Messrs. Waygood's lifts and cranes are based, in construction, on the soundest principles, which have been proved by the test of long experience. And, wherever a Waygood lift is encountered, it must, we think, be generally conceded that a completeness of detail and a stability of design have been observed. Almost every conceivable variety of lift or crane is illustrated in the catalogues before us, with electric, hydraulic, belt, or hand power as the motive. Messrs. Waygood have designed and constructed a very efficient gearing for working electric power lifts which, workable by small and inexpensive motors, and, in result, entirely satisfactory, are likely to come more largely into vogue with the advance of electricity. One of these electrical passenger lifts was shown at the Electrical Exhibition of 1892 at the Crystal Palace, running from the main floor to the gallery, and proved one of the features of the exhibition. As a passenger lift, where the height of travel is not excessive, the patent hydraulic balanced direct-acting lift perhaps takes premier

position. It has no overhead gear, and in working is safe and noiseless. In cases where the travel is high, or where economic considerations weigh, the "Side-Rod" suspended lift recommends itself. A notable patent held by Messrs. Waygood is their Economic Multiplying Cylinder, which, associated with either lifts or cranes, remedies an important defect where hydraulic power is used—the equal consumption of water, whether the load raised is at a minimum or at a maximum. As the patent has worked well and truly in experiment, it is more than probable that it will have considerable sway in the future, for its application means an appreciable saving in working. Passing over the variety of hoists manufactured by Messrs. Waygood, we may mention briefly their continuous lift for passengers and goods, suitable for public buildings, offices, factories, and stores; their platform and cellar lifts; and their warehouse or factory lift, as among the other specialties of the firm which have earned general repute.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERGAVERN.—For the erection of a Welsh Presbyterian church, &c., Llanover. Mr. B. J. Francis, architect, Abergaervenny. Quantities by architect:—
H. Smith ... £1,424 0 Jno. Morgan ... £1,240 0
Lewis and Co. ... 1,420 0 T. G. Foster, Abergaervenny ... 1,190 0
Morgan and Evans ... 1,407 7
Thomas and Sons ... 1,245 0
* Accepted.

BIRMINGHAM.—For paving, kerbing, &c., Priory-road, for the Aston Manor Urban District Council. Mr. H. Richardson, C.E., Council House, Aston Manor.—
Jones and Pitt ... £1,053 10 0 W. and A. Heaps, Currall & Lewis ... 952 11 8
J. Biggs ... 950 16 8 Nechells Park-road, Birmingham
G. Law ... 947 17 6 ham* ... 796 16 8
* Accepted.

BRIGHTON.—For the construction of two covered reservoirs, Patcham, for the Town Council.—
Field and Co. ... £9,365 Cooke and Co., 16, Victoria-street, Westminster, S.W.* ... £7,410
Holman and Co. ... 8,557
Satin and Evershed ... 8,254
* Accepted.

GULLANE (N.B.).—For the construction of outfall sewer. Messrs. Belfrage and Carrara, C.E., 1, Erskine-place, Edinburgh:—
A. Brunton & Son £1,254 3 0 G. Mackay & Son ... £967 19 9
A. Waddell & Son ... 1,125 5 0 Robert Marshall ... 961 9 0
L. & W. McDonald ... 1,102 13 0 Lawrence Kelly ... 938 4 3
John Morris & Sons ... 1,045 9 0 Wm. Carragher ... 893 13 0
Richard Wallace ... 1,008 0 0 John Martin, Dundee
J. Kendall ... 969 0 0 fernline* ... 830 15 0
* Accepted.

HASLEMERE.—For erection of new house at Greyshot, for Mrs. Smith. Mr. Arnold Taylor, architect, 2, The Sanctuary, Westminster. Quantities by Messrs. J. Leaning and Sons, Bedford-row, W.C.:—
F. Milton ... £297 0 Chapman and Lowry ... £200 0
Harding Bros. ... 995 3 H. Hutchinson ... 880 0

HAWLEY (Hants.).—For two semi-detached villas at Hawley, Hants, for Mr. J. Batcliffe. Mr. A. E. Sidford, architect, Wokingham. Quantities by Mr. E. Ide, 19, Cockspur-street, Pall Mall:—
E. Field ... £1,486 W. Smith ... £1,275
J. B. Seward ... 1,448 G. Finch, Frimley* ... 1,200
* Accepted.

HUNTLY (N.B.).—For the execution of water supply works, for the Commissioners. Mr. Jas. Barron, C.E., 156, Union-street, Aberdeen:—
G. Rhind ... £2,288 J. Wilson ... £1,055
J. Adam and Co. ... 2,140 J. McConnachie ... 1,643
P. Stewart ... 1,811 J. Hunter Clark, Richmond-place, Elgin* ... 1,550
J. Smith ... 1,782
P. Bisset and Son ... 1,785
* Accepted.

LANCASTER.—Accepted for rebuilding the "Nag's Head" Hotel and three shops. Mr. J. Parkinson, architect. Quantities supplied:—
Masonry.—Robert Thompson ... £1,760 0
Joinery.—Wright and Sons ... 800 0
Slating and Plastering.—Hall and Son ... 865 14
Plumbing and Glazing.—Harrison & Moser ... 286 12
[All of Lancaster.]

LANGPORT (Somerset).—For the construction of covered reservoir, &c., for the Rural District Council. Messrs. Bailey, Denton, Son, and Lawford, C.E., Palace-chambers, Westminster, S.W.:—
Meredith ... £2,455 14 11 Thomas & Webb ... £1,785 3 10
Lott and Walne ... 2,484 17 4 Hawking & Best ... 1,656 17 1
Hole ... 2,009 3 0 Catley ... 1,630 0 0
Roberts ... 1,920 16 0 Smith and Son ... 1,523 10 7
Lydford ... 1,843 18 0 Wills and Sons, Bath* ... 1,494 18 0
Jackson ... 1,798 16 4
Poole ... 1,794 0 0
* Accepted.

LLANDAFF.—New house at Llandaff, for Dr. Taylor. Mr. Chas. B. Fowler, architect, High-street, Cardiff:—
James Allen ... £4,250 0 E. R. Evans Bros. ... £3,687 0
W. Thomas and Co. ... 4,100 0 Cadwalader & Hook-ridge ... 3,622 0
S. Shepton and Son ... 3,920 10
J. Edmunds ... 3,850 0 E. Turner & Sons* ... 3,558 0
* Accepted.

LONDON.—For erecting a two-storied factory, and offices on Wharf "B," Windmill-lane, for the Atlas Preservative Company. Messrs. Bradshaw, Brown, and Co., architects and surveyors:—

	Work to be completed in
T. Boyce	£1,375 12 weeks.
A. Porter	1,860 17 "
Chaten & Newman (accepted)	1,340 10 "

LONDON.—For storm-water culvert, Pembroke-road, Hornsey, for the Hornsey Urban District Council. Mr. E. J. Lovegrove, engineer and surveyor:—
C. Ford ... £2,894 Neave and Son ... £2,477
Jackson and Son, Ltd. ... 2,507 J. A. Dunmore ... 2,445
Pedrette and Co. ... 2,551 W. Walker ... 2,444
Williamson and Son, Ltd. ... 2,529 Geo. Bell ... 2,443
T. Adams, Green Lanes* ... 2,399
[Surveyor's estimate, £2,200.]
* Accepted.

LONDON.—For surface water sewers in Tottenham, and High-street, Hornsey, for the Hornsey Urban District Council. Mr. E. J. Lovegrove, engineer and surveyor:—
W. Walker ... £2,736 G. Bell ... £2,226
Williamson and Sons, Ltd. ... 2,659 J. A. Dunmore ... 2,224
Pedrette and Co. ... 2,639 Jackson and Son, Ltd. ... 2,223
Neave and Son ... 2,425 T. Adams, Green Lanes* ... 2,210
C. Ford ... 2,425
[Surveyor's estimate, £2,200.]
* Accepted.

LONDON.—For alterations at the "Prince of Wales," public-house, Prince of Wales-road, N.W., for Mrs. Gibbs. Messrs. Lewcock and Calcott, architects, 88, Bishopsgate street, Within:—
Maple and Co. ... £2,750 Goadey ... £1,150
Bertram ... 2,529 Green and Smith ... 1,189
Marchant and Hirst ... 2,145

LONDON.—For the extension of the Electric Light Generating Station in rear of No. 57, Fulham Palace-road, Hammersmith W., for the Vestry of the parish of Hammersmith. Mr. Hugh Mair, C.E., vestry surveyor, Town Hall Hammersmith. Quantities by Mr. Walter Herring Trafalgar-buildings, Northumberland-avenue, W.C.:—
Marchant & Hirst £3,835 0 0 H. Wright ... £3,635 0 0
C. Gray Hill ... 3,785 0 0 B. E. Nightingale ... 3,510 0 0
William Whiteley ... 3,759 5 11 T. W. Thomas ... 3,501 0 0
Geo. Wimpey and Co. ... 3,658 0 0
* Accepted.

LONDON.—For the construction of an underground convenience, for the Plumstead Vestry. Mr. W. C. Gow, C.E. Surveyor:—
Doulton and Co. ... £2,417 E. Proctor ... £2,338
C. Foreman ... 2,393 Thomas and Edge ... 2,338

LONDON.—For the erection of house and stables at West Hill, Putney Heath, S.W., for Mr. F. Faulkner. Mr. R. J. Thomson, architect, 64, Hill-road, Wimbledon. Quantities by Mr. A. Boxall, 8, Adam-street, Adelphi, W.C.:—
Lathey Bros. ... £5,420 Holloway Bros. ... £5,112
Minter and Co. ... 5,289 W. Johnson and Co. ... 5,065
Smith and Sons ... 5,273 Lorden and Son ... 4,933
Adamson and Sons ... 5,283 Bulled and Co.* ... 4,440
* Accepted.

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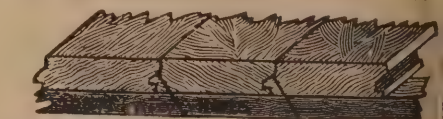
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17 1/2 x 3 x 1 1/2	6 9	6 0	9 1	



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LONDON.—For reconstruction of premises, Pratt's-row, norton. Mr. John Hamilton, architect:—

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750 | Jarvis and Son ... 565

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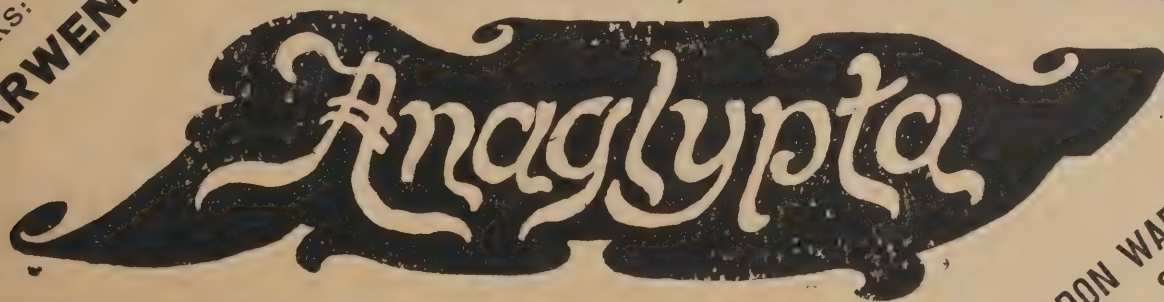
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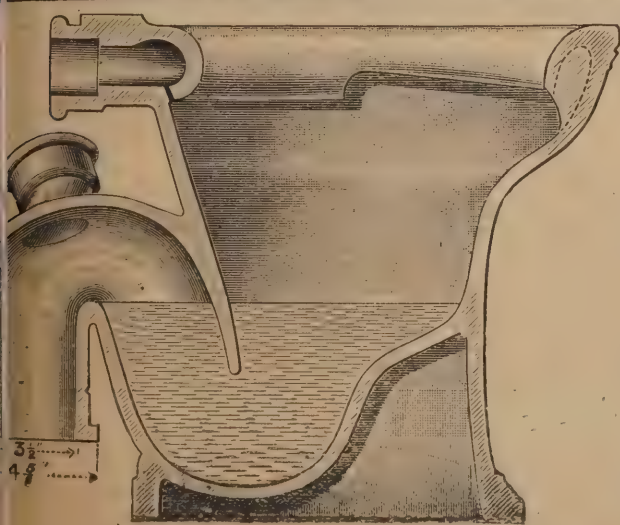
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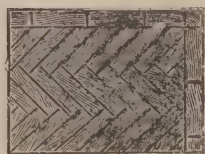
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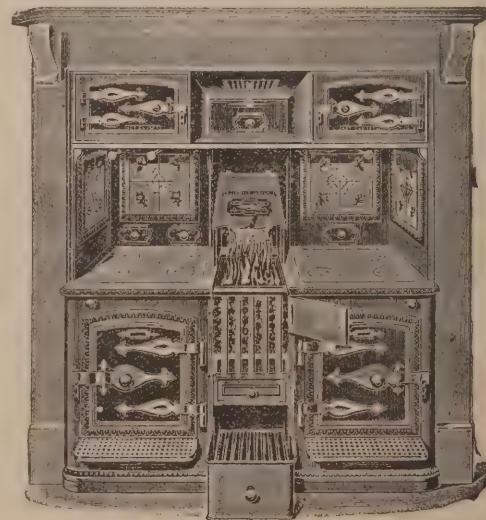
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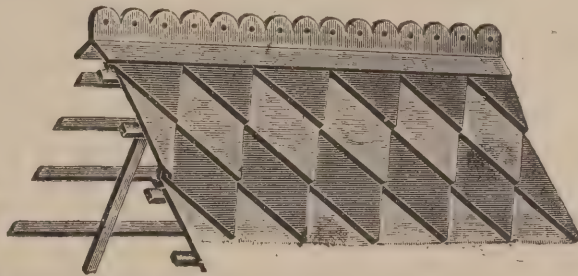
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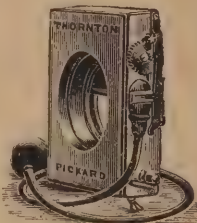
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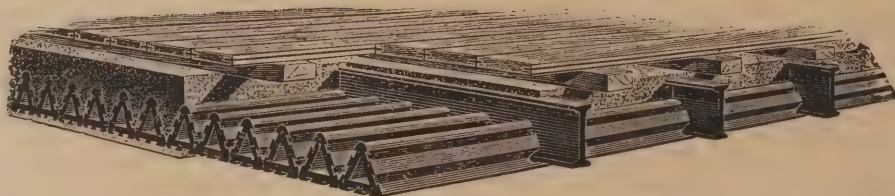
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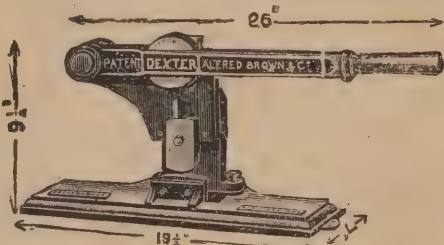
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"The Wayfarer" in
a Surrey Village.

THE Wayfarer
sat down for a
moment or two to

look out over the purplish brown heath in front of him. The broad stretch of dark colour was dotted here and there with gorze bushes in flower, and to the right rising from the heath were a number of fir-trees. A narrow road, with deep wheel ruts in its yellow soil, showed the way the Wayfarer had come. At the distant edge, against the beginnings of a wood, nestled a Surrey village. A Roman road—along which a slow but constant stream of leisurely traffic had run for some hundreds of years—divided the village into two parts, that nearest the heath being the older. Behind the wood to the rear of the village, and beyond the pines to the right and left, were brown fields with the young wheat just beginning to break through the ground, and vivid green meadowlands with an occasional clump of trees; rising to where the horizon seems to touch the sky. The Wayfarer now rose from the ground, and, after a little walking, drew near to the village of Witley. The church situated in the older portion stood back some distance from the main road. The spirelet of its stone tower, covered with oak shingles and well within the parapet wall, could be easily seen among the elms by the Wayfarer, as he came listlessly down the village street. The church consisted of a nave and chancel, a small aisle and vestry. A small staircase on one angle of the tower led to the belfry. Although the building had been erected at different times, no one part clashed with another, the village craftsmen had unconsciously done their work well. The nave and chancel, which formed the older portion of the building, was of stone; the aisle and the vestry had been added later, and were built of half timbering and brickwork, placed diagonally between the woodwork. On the left of the lych-gate, which gave access to the graveyard in the front, were the remains of the ancient church house, now used as a vicarage, some new rooms having been added to accommodate the present vicar. At the far end of the churchyard stood the manor house, and further off was a timber building, with brickwork filling in the interstices, two floors in height, called the Moat House. It was till recently—so the Wayfarer subsequently overheard in the "Red Cow," an inn opposite the church—occupied by the author of "Keynotes," but at the present time was tenanted by four young people: one a rising young black-and-white artist; an eccentric novelist, an Art critic, with pre-Raphaelite predilections; together with an architect of "arty and crafty" notions. The moat which had once surrounded this building had long disappeared, to the chagrin of the black-and-white artist, whom the villagers of Witley occasionally found with pickaxe and shovel endeavouring to restore the moat to its original state. These were the principal buildings. The

rest on the side next the heath were half-timber cottages filled in with plaster, built upon a rough stone base, about 3ft. in height. The roofs were of tile, now covered with vegetation, and the chimneys of a simple and sturdy character. On the other side of the road were the new cottages, built by a millionaire, whose house rose from the side of a hill, about a mile and a half towards London. These cottages were of a dark-red brick, harsh in colour, gables finished with elaborately cut bargeboards, a number of moulded brick courses, terra-cotta panels, and some zigzag diamond shapes in another coloured brick on each side of the windows,

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at length of the "merits of a book which, for command of language, ease of style, and exhaustive scholarship, may be heartily recommended to all classes of readers." This from a daily contemporary, addressed to the general reader, had already prepared us for pleasure, yet it gave but a hint of the worth of the book to the more limited classes who delight in the study of Art. An idea of the amount



THE MONASTERY OF MONTSERRAT. VIEW FROM ABOVE THE FUNICULAR RAILWAY.

both ground and first floor. All this beauty of the modern world was, sad to relate, the envy of the villagers living in the old timber buildings; and the Wayfarer gathered, in the course of conversation with the ancient inhabitant at the "Red Cow," that there was a strong tendency for the population next the heath to gravitate to the other side of the road, and take up their residence in the modern world. The Wayfarer on hearing this rose from the bench where he sat with the ancient one, and passed out through the open door of the inn, into the road beyond.

G. LL. M.

of work the author has done in order to reduce the available matter, may be obtained by examining the bibliography with which it concludes. We gather from this that what is original with the author is his style and sense of proportion, for had it not this and that we could not have had such an excellent work. He tells of a mediæval treatise on beasts in which the *symbolisms* (with which we are dealing) "were wonderfully wrought out, and every feature, member,

"Animal Symbolism in Ecclesiastical Architecture,"
by E. P. Evans. Wm. Heineman, 9s.

hue, and habit of the creatures thus allegorised, was made to yield a secret and subtle significance"; and quotes then from the author as follows:—"What Holy Writ inculcates on the learned, pictures impress upon the ignorant; for, as the scholar delights in the subtlety of Scripture, so the soul of the simple is pleased with the simplicity of pictures." Then follows Mr. Evans' own comment:—"But this simplicity was often lost in a puzzling maze and winding labyrinth of allegorical and mystical interpretation, which it would be impossible for the wayfaring man, even though he were not a fool, to thread without the 'Physiologus,' or some later elaboration of it as a clue." The "Physiologus," it should be explained, was the predecessor of our Cyclopædia, and dates from the second or third century. It was rather a compendium, or digest, of what knowledge there was at the time, than the production of only one man. "It was compiled," Mr. Evans informs us, "by an Alexandrian Greek from a great variety of sources, and doubtless embodied much of the priestly wisdom and esoteric science of ancient Egypt." The student of Law is aware that the usual result of codifying a complex of Laws is to impede progress, and the remark applies as well to the subject matter of knowledge at large. The "Physiologus" once published remained the standard work upon Natural History from the time of its first appearance until well into the Middle Ages. What interests us more particularly is the way in which the facts, if facts we may call them, were regarded by the Christian fathers, and entertaining indeed is the way in which they in their wisdom agreed to represent them. The most insignificant animal had either virtues or vices which supplied the preachers of the day with their texts. Take, for instance, the elephant, which, however, is rather a big one. The simple fact is, and hereupon we all are agreed, that once on his knees he cannot get up again. "What signifies this, but the *Fall*?" says the preacher. As to what "tempted" the elephant we have no information. As with animate, so seemed it to be with inanimate objects, but space will not permit of any further quotation. It may be remarked, in conclusion, that forasmuch as a building is sacred the artist must utilise symbols of sanctity. To each is an emblem appropriate, and often it happens that in the animal kingdom we find the idea of Virtue incorporate. The reader of the chapter entitled "Symbolism Superseded by Satire" will learn to clearly distinguish the work that "emblematises" the abstract virtues and vices from that which stigmatises hated or despised individuals of particularly objectionable classes. But there is truly inexhaustible matter in the humours, conscious or unconscious, of Mediaeval workmen, and the writer of this most excellent book has furnished the intelligent reader with the key to it all. We conclude, as we began, with an extract from a previous notice: "It is one thing to identify beasts and birds when we see them, and another to be able to say what they are up to, or after. The men of the Middle Ages, to whom natural phenomena were strangely portentous, saw more than we see in a fox—to take only one instance. Foxes in holes are types of the Devil. Foxes in crows are itinerant friars (who were detested by the Regulars, and they in turn by the Secular clergy). Amongst Reynard's auditors are the bear, the ape, the he-goat, the griffin, the cock, the hen, the stork, the sow, and the cat, which are either holding prayer books or psalters, or singing hymns from sheets of music, while the unicorn plays the bagpipe, and the ass performs on the harp."

E. R.

ART IN GREAT CITIES.

BY SIR WYKE BAYLISS.

BEFORE the Royal Society of British Artists, the president, Sir Wyke Bayliss, recently delivered a lecture, entitled "Art in the House of Her Friends—a Special Address to Dwellers in Great Cities." The lecturer said that as Art was the science of beauty, so sanitation was the science of health, and health and beauty were inseparable. The progress of Art in our country and the free development of some of its finest characteristics had been arrested and seriously impeded by the foul condition of the atmosphere of our great cities. The arrangements of our dwellings were not conducive to the development of the beautiful: the law of beauty, as well as the law of sanitation, was that things were right only in their right place. If we could do nothing better with works of Art than to smoke them black, artists would probably furnish us with works suitable for that purpose. Any great scheme for

THE DEVELOPMENT OF NATIONAL AND HISTORIC ART

was practically hopeless so long as the state of things continued. To find a remedy they must not look to the artist—Art was in the house of her friends, and artists looked to them to see that the house was habitable. Had they ever reflected on the injury done to Architecture by the insanitary condition of our great cities, and of London in particular? They could only form a faint idea of the pristine beauty of Westminster. Only on the Continent could we see the wondrous architectural beauties bequeathed to us in bygone ages. Here, in London, we created the darkness by the innocent process of cooking our mutton-chops. He was ready to admit that London must have its mutton-chops, but it was shameful that the method of their cooking should deprive the artist of the use of marble and mosaics. It was not the climate which the artist had to fight, but the climate plus dirt. It was dirt which carried foolishness into the councils of our building committees. What had become of the few works of Art which adorned London? They looked as though they had suffered a martyrdom and were black with slime. Under these

DEPRESSING INFLUENCES

Art could not flourish. Its neglect meant ignoble buildings; railway stations and street hoardings plastered with hideous posters, which "crushed" our eyes so that we could not lift them from the mud of the streets; and pictureless walls in dwelling-houses covered with a rigmarole of paper designs. These were not necessary evils; and once the city was relieved from the nightmare of dirt and smoke, artists might be trusted to retrieve the national honour and to bring Art not only into the public places, but into the homes of the people. Let sanitation lead the way and they would see the return which Art could make to its friends. Art could not do everything, but it could do much to increase the sum of human happiness, and happiness was one of the most powerful of disinfectants. No one could calculate what we lost as a nation by the discouragement by dirt of the noble Art of mural painting. It was for the friends of Art to provide the remedy. In conclusion Sir Wyke Bayliss said the time might yet come when an artist's work would be actually immortal.

A STAINED glass window has been placed in St. Germans Parish Church, Plymouth. The centre light represents St. Thomas the Apostle, surmounted by a crown. The right hand light portrays St. Thomas Aquinas, bearing in his hand an open volume. On the left of the figure of the Apostle is a representation of St. Thomas of Canterbury, Archbishop and Martyr, vested as a bishop, and bearing his crozier and pontifical. The tracery in the upper part of the window is filled with figures of angels. The window was designed and executed by Mr. Fouracre.

ANCIENT EGYPT.

THE TOMB OF AMENOPHIS II.

SOME interesting details of the tomb of Amenophis II., which was discovered about three weeks ago, have just been given in the Times. Its Cairo correspondent says:—"As a sequel to this discovery of the tomb of King Thothmes III. at Thebes, M. Loret, Director-General of the Antiquities Department, has discovered and opened the tomb of Amenophis II., a king of the eighteenth dynasty, who reigned some 1500 years B.C. The find is amongst the most interesting ever made in Egypt, as, although the jewellery, &c., were rifled from the tomb probably during the twentieth dynasty, the mummies of Amenophis and seven other kings are intact. The tomb is entered by

A STEEP INCLINED GALLERY,

which terminates in a well of some 26ft. in depth, and, this obstacle surmounted, the entrance to the King's sepulchre is reached. In the first chamber the body of a man is found bound to a richly painted boat, his arms and feet tied with cords, a piece of cloth stuffed as a gag into his mouth, and marks of wounds on the breast and head. In the next chamber are laid out the bodies of a man, a woman, and a boy. None of the four bodies have been embalmed, but owing to the dryness of the atmosphere they are all in the most complete state of preservation, with the features perfect; and, although they evidently met with violent deaths, they have the appearance of being asleep. The hair upon each is luxuriant, and the features resemble to a marked degree those of the fellaheen of the present day. The King's tomb is

A CHAMBER OF MAGNIFICENT PROPORTIONS,

in perfect preservation. The roof, which is supported by massive square columns, is painted a deep blue, studded with golden stars, and the walls are entirely covered with paintings, the colours of which are as vivid as if laid on only yesterday. At one end of this chamber, in an excavation sunken several feet below the level of the rest of the floor, is the sarcophagus of the king, placed upon a massive block of alabaster. The sarcophagus is of sandstone, artificially coloured a bright rose hue, and contains the mummy intact, with chaplets of flowers round the feet and neck. In a small chamber to the right are nine mummies, two of them bearing no name, and the others those of the Kings Thothmes IV., Amenophis III., Set Nakht, Seti II. (supposed to have been the Pharaoh of the Exodus), Rameses IV., Rameses VI., and Rameses VIII., who all reigned between about 1500 and 1150 B.C. The tomb is that of Amenophis II., for whom it was built, and is supposed to have been opened later to receive the mummies of the other kings, probably to save them from violation. The floors of all the chambers are covered with a mass of objects—

STATUES, VASES, WOODEN MODELS

of animals, boats, &c., requiring immense care in sorting for removal. The whole constitutes one of the most impressive sights that can be imagined. For the first time on record, the body of an Egyptian king has been found in the tomb prepared for him, as previously discovered royal mummies had been removed from their tombs and secreted for safety at Deir el Bahari. Possibly this discovery of the bodies of murdered victims in a king's tomb may throw some light upon the vexed question of human sacrifices which now divides Egyptologists. The Public Works Ministry has requested M. Loret to remove only the smaller objects and to leave the mummies and bodies in their present place. The entrance to the tomb will then be built up until next winter, when iron railings may be placed to prevent injury from touching by visitors, whilst affording them the unique sight of the lying in state of a king who reigned over 3400 years ago."

SPAIN:

Its Picturesque Cities and Monasteries.

II. THE MONASTERY OF MONTSERRAT.

By F. HAMILTON JACKSON.

THE Monastery of Montserrat is built upon an isolated mountain some thirty miles to the north-west of Barcelona, which consists of a mass of grey conglomerate twenty-four miles in circumference, and which, at its loftiest point, a peak called San Geronimo, is more than 4000ft. high. It was called Mons Serratus, or Monte Serrado, either from its jagged appearance, something like the teeth of a saw, or because the Eastern face is split by a chasm as if sawn, which the Spanish legends say occurred at the time of the Crucifixion. Its pinnacles and pyramids of most strange shapes are said to resemble a mountain of hard volcanic tufa which is to be seen in Iceland, between Akureyri and Kalmanstunga; but, on a near view of the great fragments which in places overhang the road, the rock looks almost as if it were made by man's hand, a concrete of large pebbles not very well compounded. Yet there are several quadrangular blocks as large as a house which one passes on the road, supported at their lower corners by dwarf walls of considerable age, and which show no signs of disintegration.

The nearest station to the monastery is on the line to Zaragoza which goes by way of Lérida. From that station, Monistrol, the traveller has the choice of three ways of reaching it, first by a funicular railway, which makes pilgrimages easy to the rich, secondly on mule back or by carriage, and thirdly on his own legs, in the two latter cases making use of the excellent road, for the roads to convents and pilgrimage places have always been made smooth and easy in Spain. This road winds up and up, rounding spur after spur of the mountain and zig-zagging up difficult ascents, till, at some 3000ft. above sea level, it reaches the little rift occupied by the monastery and its dependencies.

It is quite invisible from below. One can see here and there a little piece of the embankments which support the railway, with an occasional telegraph post far away above one, with a feeling of wonderment and doubt as to the possibility of getting up so high, but the last half hour of the road ascent is above the railway, and one looks down on it with a calm feeling of superiority.

As we left the station at Monistrol the mountain faced us, stupendous in its size and mystery, for it was afternoon, and the sun was behind it, while a slight mistiness in the air disguised detail and added distance and apparent size. At first the road ran down hill with devious curves, but a rough footpath across a vineyard enabled us to take a short cut towards the banks of the river Llobregat, upon which stand several mills which afford employment to the inhabitants of a little village through which the road passes. Beyond this it turns to the right, still following the river bordered with trees, between which is seen a stretch of green sward upon which sheep feed, and then the sparkle of the water, on the further side of which rise precipitous banks, sparsely studded with trees, and with the mountain closing the vista. After passing under the funicular railway and by a mill, the road rises steeply to a quaint bridge, with three arches high above the river, crossing which we enter Monistrol proper. The streets are narrow and tortuous, as well as steep, and our path turns suddenly to the left up an alley, which it seems impossible can lead anywhere, but which soon conducts us past the public washing-place, and a little house, in front of which the vines have already set their grapes, though it is only the last day of April, to the main road which skirts the village. From this point it is one steady pull up the mountain, rising higher with each successive stretch of the road, and with a constantly widening view, till, on

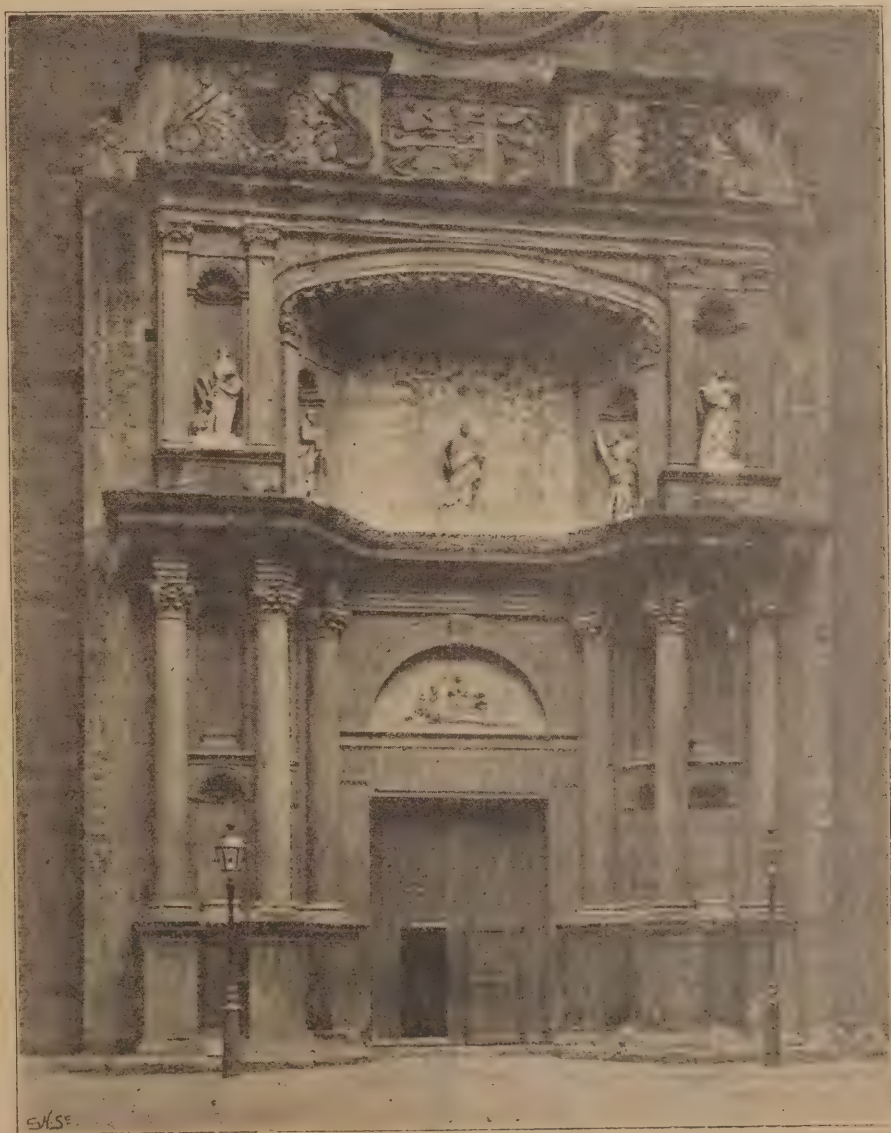
approaching the monastery, it embraces the distant Pyrenees, blue on the horizon in one direction, and the Mediterranean as blue as they in another, while all around hills covered with a warm red soil alternate with rich valleys, among which lie scattered Manresa and many villages, and at the foot of the mountain the Llobregat winds through the village of Monistrol, which we passed on our way.

The ravines, down which the storm waters stream when it rains, are wild and uncultivated, though green with grass to a considerable extent, but the gentler slopes are terraced and irrigated, and are planted with vine and olive trees as well as with annual crops. Except for the signal-houses on the railway, but two inhabited houses, both Fondas or inns, are passed after leaving Monistrol until we reach the monastery (though two more, suburban villas apparently, are being built some half hour from it), and scarcely a human being is seen except a few scattered peasants engaged in agricultural labours or herding sheep and goats. The birds, however, make their notes heard every now and then, for there is plenty of cover for them among the olive trees, though the greatest luxuriance of vegetation, reversing the usual experience when mountain climbing, is towards the top of the mountain, where in every place where soil can rest evergreens grow and numerous flowers and bushes, many of them peculiar to the place, tempt the botanist to explore, and may lead him to venture into perilous situations, for above the Monastery the precipices very often plunge down sheer for a thousand feet or more but a short distance from the mountain paths which must be followed; and their edges are not seldom concealed by the luxuriance of the

vegetation. The air is clear and exhilarating, and though, even at the beginning of May, the heat is great, exertion is not exhausting as it is in the plains below, and many of the inhabitants of Barcelona make the pilgrimage to Montserrat several times in the course of the summer, just as our town-dwellers escape from the city heats to the seaside to be braced and invigorated.

In this delightful situation, a rugged and dreadful wilderness as it was then considered, the first hermit, S. Asicle, built his hut in the sixth century, and since that time many other hermits have dwelt here who fled from the world for various reasons. Most of the hermitages were burnt by the French; they were fifteen in number, of which eleven formed a "via sacra," ending at the summit of San Geronimo—each was separate and with difficulty accessible. The anchorite who once entered one never left it again.

Just before reaching the monastery, the conduit which brings water to it may be seen, carried on a series of slightly projecting arches as it skirts the precipice which overhangs the road, and at the turn is a little plateau on which stands an ancient oratory, and from which the chapel built over the "Virgin's Cave" may be seen, together with an extensive view of the Valley of the Llobregat, and the lower spurs of the mountain on this side. A little further, under the walls of the church, which rise to an enormous height above the road, is the cross which marks the place beyond which the holy image refused to move when being carried towards Manresa, as an inscription states—"Aqui se hizo inmovil la santa imagen en 880." It stands upon the parapet, and is surrounded by trees which rise



FACADE OF THE CHURCH, MONTSERRAT.

from the bank outside, which slopes steeply towards the valley. Next, the station of the funicular railway is passed, and a waiting place with refreshment stall attached (quite in the English manner), where mules may be hired for the trip toward the top of the mountain, which rises 1000ft. higher still, and where a few carriages also wait. Then the road, turning sharply to the right, passes under the entrance gateway, still ascending rapidly. On the left is the wall which supports the road to the Fonda, and to some of the lodging places for pilgrims—more of which are on the right of it also, for 2000 beds can be made up each night. Proceeding straight forward one reaches a small plaza, in which, in the morning, a little market is held. This overlooks the valley on the right and the drying-ground, where the sheets are exposed after washing, while on the left is to be seen the small remnant of the ancient monastery—one side of a fifteenth century cloister, with a ruined wall at right angles to it, containing a Romanesque doorway and a

curtains for two chairs and a small table—a window, and an iron washstand with a water-pot of quaint shape. The beds are excellent—spring mattresses and good blankets and a coverlid with the arms of the monastery woven into the material. These arms consist of a peaked mountain with a saw resting on its topmost peak, of the kind which is tightened by the twisting of a cord, and form a well-designed ornament, being surrounded with scroll work something like an heraldic mantling. The floors are tiled, and the windows can be opened wide; moreover, there is plenty of water for washing! In the month of May it is difficult for travellers to find accommodation, so great is the number of pilgrims who still resort to the holy image, though Sept. 8th is the day specially dedicated to this Virgin. The Fonda is only a place for providing food and drink—not for lodging. A portion of it was erected in 1757, as stated by the date carved on the lintel of the principal doorway, but it has been enormously enlarged, and now consists of three stories, the topmost of which

GREAT ART WORKERS OF THE CENTURIES.

THORWALDSEN: SCULPTOR IN STONE.

THE great facilities which the harder lime-stones, generally termed marble, afford for the exercise of the sculptor's art were very early discovered. Many remains of Egyptian statues of stone are extant, and the large sculptured slabs discovered by Sir H. Layard amongst the ruins of Nineveh, and now in the galleries of the British Museum, are mainly of alabaster. The ancient Greek sculptors—pre-eminent in their profession—were especially fortunate in the contiguity of quarries of white marble peculiarly fitted for purposes of statuary. From the quarries of Pentelicus was obtained that beautiful pure white marble in which the immortal Phidias carved his divine conceptions. This greatest of all



The Oratory
of S. Asiscle
Montserrat

SKETCHED BY F. HAMILTON JACKSON.

window or two, the whole raised on a paved platform, to which access is gained by two flights of steps, between which is a pump. This cloister is now utilised for the sale of photographs and mementos of pilgrimages.

Facing the plaza are the entrances to the atrium in front of the church, another cloister now used for the accommodation of pilgrims, the east side of which is formed by the façade of the church itself. The lodgings for pilgrims are called "hospederias" or "aposentos," and are placed under the protection of various Benedictine saints. Thus in the atrium are the aposentos of San Luis Gonzaga, of San Leandro and San Fulgentio, of Santa Escolastica and Santa Gertruda; while nearer to the Fonda are the hospederias of Santa Teresa de Jesus, of San José, and the aposentos of the Venerable José de San Benito, and of San Alfonso, scarcely any of them names of great renown. The arrangement of the buildings is as follows:—There is a fireproof staircase from which long corridors are entered at each story, which give access to the rooms. Each room has two beds—in a little curtained alcove—and just room enough outside the

is a large *salle-a-manger*, accommodating 200 or more persons at a time, while the other floors are filled with small tables, and should accommodate as many more—when allowance has been made for a *café*, which occupies a large part of the ground floor. Food is good and plentiful.

(To be continued.)

A NEW window in the Priory Church, Malvern, has been unveiled. The cost of the window was £236. The window is at the back of the altar in St. Ann's Chapel, which is situate on the south side of the church. The history of the Priory in brief is depicted in the window, of which Mr. C. E. Kemp was the designer.

The work of removing the wooden staging in the Thames a little to the west of Blackfriars Bridge, which for the last four years has formed the chief base for the operations in connection with the construction of the City and Waterloo Railway, has been commenced, and in a few weeks' time the "island" will be a thing of the past.

sculptors flourished during the fifth century before our era, and some of the productions of his chisel, brought by the late Lord Elgin from the Parthenon, are in the British Museum, in the collection known as the Elgin marbles. Besides this supreme artist, Praxiteles, Scopas, and others worthily maintained the Art of Greece; and later, during the Classic period, Rome produced some sculptors of eminence. During the Middle Ages, although a wealth of carving of ornaments and flowers was lavished on the stone arches and capitals of minster, church, and abbey, there was but little statuary sculpture accomplished—at least, worth preserving. With the Renaissance, however, the Art again revived, and men like Michel Angelo were worthy rivals of

THE BEST ARTISTS OF ANTIQUITY.

In more modern times there has been again a falling off, although certain artists, such as Canova, Flaxman, and Thorwaldsen, rank very high, and it is the last of these whom I have selected as the subject of this sketch. Before, however, proceeding to my subject



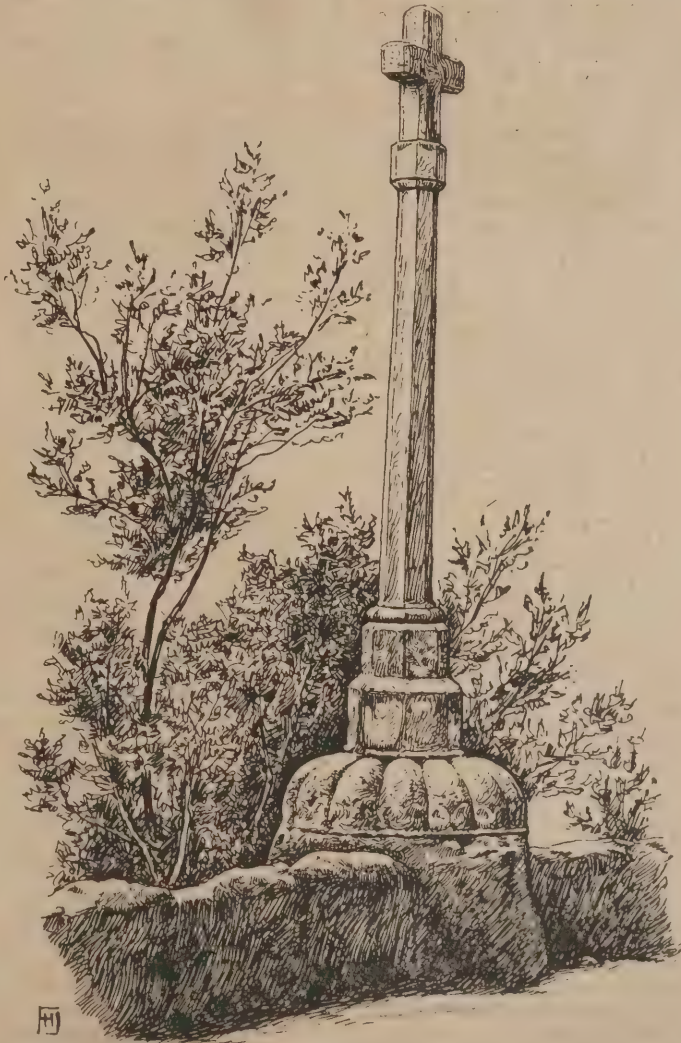
REMAINS OF THE ANCIENT MONASTERY, MONTSERRAT.
SKETCHED BY F. HAMILTON JACKSON.

marble block that it did to the clay figure, the sculptor knows that the boring is correct. He then makes a measurement of another prominent portion of the clay figure, and bores a corresponding hole in the marble block. By this means, when the workmen have done with the block, it has a series of holes drilled in it, the inner extremities of which correspond with all the salient points of the desired statue. The sculptor can now proceed to chisel away the superfluous marble with confidence, as he is aware that wherever he reaches the end of a hole he must proceed with the greatest caution. Of course, any ordinary workman can do the drilling, which I have just described, but the chiselling away of the marble must necessarily be done by the artist. The only sculptor known to fame of whom it is asserted that he dispensed with this troublesome and dilatory process is Michel Angelo, who is said to have cut out his statues from the stone block without any preliminary preparation. It is very doubtful, however; but there is an unfinished statuette of St. Sebastian by the great sculptor in the South Kensington Museum which seems to support this statement. To revert, however, to Thorwaldsen. Although his family is said to have descended from the Danish King; Harold Hildebrand, the father of the subject of this sketch, was Gotschalk Thorwaldsen, and the maiden name of his mother was Karen Grönlund. Albert (better known in Denmark as Bertel) was born in 1770, and his

early predilection for Art derived its origin from the occupation of his father, who supported his family by the execution of

ROUGH CARVINGS

for the figure-heads of vessels in the dockyards of Copenhagen. "For the earliest information concerning his son," says Mrs. Rowan, "we are indebted to some old ship carpenters of Copenhagen, who related that they perfectly well remembered him as a handsome, fair-haired boy coming to visit his father at the dockyard, and that he was loved by all who saw him." The views of Gotschalk Thorwaldsen with respect to the future career of his son did not extend beyond qualifying him to act as an assistant in his own trade, and it was with some difficulty that this determination was by the earnest importunity of friends commuted to the better purpose of conferring upon him an artistic education. His studies commenced in his eleventh year at the Academy of Copenhagen in 1781, under the instruction of Hans Cleo, and, after twelve months of preparatory application (an unusually short period), he was removed to the life class. Three years were devoted to the exclusive study of the human figure, after which, for the first time, casts from the antique were placed before him, a course of study which seems to reverse the order of progress laid down in the existing schools of Europe. In 1786 he began to work in clay. The Academy was at this time under the direction of the sculptor Wiedewelt, but it was to Professor Abildgaard, under whose immediate instruction Thorwaldsen prosecuted his studies, that he was indebted for an affectionate and active interest, which, operating upon his own intelligent assiduity, enabled him to gain the silver medal after an attendance of one year at this school. When discoursing of his student days, Thorwaldsen dwelt with satisfaction upon one result of this triumph, which was the respectful prefix of Mr. to his name by his religious examiner



THE MEMORIAL CROSS, MONTSERRAT. SKETCHED BY F. HAMILTON JACKSON.

proper, I would beg leave to say a word upon sculpture generally. Few people, save that small minority who have given the subject special attention, are aware of the difficulties attending the production of a fine statue in marble. Many folks actually suppose that the sculptor takes his stand, with a mallet in one hand and a chisel in the other, before a big block of stone, attacks it boldly, and rapidly chisels out a god or a nymph or other subject after an ideal only existing in his own brain. Alas! the actual process is much more prosaic and extremely slower than this grand off-hand style would be, the usual procedure of the sculptor being somewhat after this fashion. Having thought of his subject, and how he should treat it, a full life-size drawing is generally made. From this the sculptor models the figure, full size, in clay, which is permitted afterwards to get dry. The block of marble of sufficient size and the clay model are then placed side by side in the atelier or studio. An apparatus is next brought forward, consisting of a tall upright firmly fixed in a heavy foot. A horizontal arm slides upon this upright, and can be fixed at any elevation, and this arm can be extended more or less in a horizontal direction by a slide. This instrument is placed before the clay figure at a certain exact distance, and the arm is adjusted both vertically and horizontally until it touches some prominent part of the image, say an outstretched hand or the tip of the nose. At precisely the same height from the ground one of the sculptor's assistants proceeds to drill

A HOLE IN THE MARBLE.

When he thinks he has bored to a sufficient depth he brings the gauge mentioned to the correct distance before the block, and inserts the arm in the position in which it touched the clay figure into the hole which he has made. If the arm will go quite into the hole while the foot of the gauging apparatus occupies the same relation to the



THE MONASTERY OF MONTSERRAT. THE ENTRANCE GATEWAY, FROM WITHIN.

on having ascertained that he was the Thorwaldsen who had distinguished himself in the Academy competitions. It may be noted that Thorwaldsen soon made

WONDERFUL PROGRESS IN SCULPTURE,

but could be so little persuaded to attend to other studies, that he reached the age of eighteen scarcely able to read. In his twenty-third year he obtained the great gold medal, to which a travelling stipend was attached, and thus he was enabled to visit Rome, where, encouraged at first by the patronage of Thomas Hope, the English banker, he soon reached the highest degree of celebrity. Denmark became proud of her son, so that his visits to his native town in 1819 and 1837 were like triumphal progresses, all the city going forth to meet him, and lodging him in very fine style at the public expense, but his heart always clung to the Eternal City, which continued to be the scene of his labours. Of his many works, perhaps his noble lion at Lucerne is the best known. He never married, though he was long attached to a member of the old Scotch house of Mackenzie, and he died on a visit to Copenhagen in 1844. As specimens of Thorwaldsen's style, it may be mentioned that one of his most characteristic works is a figure of Hope, in which the arrangement of the drapery is both careful and effective. This work was realised according to the spirit of a relic discovered at Ægina, because Thorwaldsen, with his profound reverence for Classic Art, did not think himself justified in attempting to alter any type which had been accepted by the Greeks and Romans for centuries. This statue was executed in marble in 1829 for the Baroness von Humboldt, and a copy of it was placed on her tomb

IN THE GARDEN

of her palace. Other grand works are a group consisting of Ganymede feeding the eagle of Jove—the dimensions of this are 3ft. 4in. by 2ft. 7in.; the disposition of the lines of the work cannot be excelled—and a truly magnificent figure of "Christus Consolator" in the Fru Kirche, or Lady Church, at Copenhagen. Certainly no more sublime and adequate representation of the Redeemer of the World than this gracious and truly magnificent

realisation has ever been produced by artist, ancient or modern. Just so—so winningly gracious, so divinely beautiful, we can imagine that Jesus appeared as He uttered those few words which have often consoled heartbroken mortals: "Come unto Me all ye that are weary and heavy laden, and I will give you rest." Few sculptors have the good fortune to be represented by such grand extant works as Thorwaldsen, whose countrymen hold his memory in great respect, and even veneration. Many of his best works adorn the Fru Kirche of the capital. At Copenhagen, too, is to be found the Thorwaldsen Museum, of which the Rev. J. G. Hare thus sympathetically writes: "In accordance with Thorwaldsen's own wish, he rests in the centre of his works. His grave has no tombstone, but is covered with green ivy. All around the little court which contains it are halls and galleries, filled with the mar-

vellously varied productions of his genius, arranged in the order of their execution, casts of all his absent sculptures, and many most grand originals. Especially beautiful are the statues of Mercury, modelled from a Roman boy, of whom the original is in the possession of Lord Ashburton, and the exquisite reliefs of the 'Ages of Love' and of 'Day and Night'—the two latter resulting from the inspiration of a single afternoon. But all seems to culminate in the great Hall of Christ, for though the statues here are only cast from those in the Fru Kirche, they are far better seen in this well-lighted chamber than in the church. The colossal figures of the Apostles lead up to the Saviour in sublime benediction; perhaps the statues of Simon Zelotes and the pilgrim St. James are the noblest amongst them." In conclusion, it may be remarked that there is in the South Kensington Museum a plaster cast of a very fine work of Thorwaldsen's. This is a frieze representing the triumphal entry of Alexander the Great into Babylon. The original is in the Royal Palace of Christiansborg, Copenhagen. This cast was presented to the Museum by the Danish Government after the Exhibition in 1862, and students will derive a valuable lesson in carefully studying its magnificent details, as it unquestionably shows the great Danish sculptor in one of his very best styles.

W. N. B.

A LOCAL GOVERNMENT BOARD inquiry has been held at Colchester into the application of the Town Council to erect a new town hall, from the designs of Mr. J. Belcher, at an estimated cost of £36,000.



MONTSERRAT: FROM THE ATRIUM, LOOKING OUTWARDS.

STAGE MECHANISM.*

BY EDWIN O. SACHS,

AUTHOR OF

"Modern Opera Houses and Theatres," etc.

A MOVEMENT known by the name of "Stage Reform" has of late years received some attention in this country. It originated some twenty years back in Austria, with the primary object of encouraging the greatest possible imitation of nature in the *mise-en-scène* of opera and drama. The rudiments of Art, as understood by painters, sculptors, architects, and the cultured public of the day, were to be applied to the stage, and a true Scenic Art was to take the place of the nondescript, irrational and frequently coarse mounting previously given to plays. To facilitate the efforts of the scenic artist, the fullest application of our modern sciences (notably of mechanics and hydraulics) in the interest of

"STAGE REFORM"

was considered essential, and the introduction of recent methods of lighting was also deemed necessary. The numerous fatal conflagrations which had originated on the stage, caused the question of protection from fire to be closely associated with the movement, while the frequency of dangerous diseases among the members of the dramatic profession preserved the claims of hygiene from neglect. The movement, as I have said, originated in Austria soon after the terrible "Ring" Theatre fire at Vienna; and, on account of the prominence accorded to protective measures against fire, much headway was at that time made in German-speaking countries. Able exponents were found among leading artists, and stage-managers, architects, engineers, firemen, and last, though not least, the Government and municipal authorities, interested themselves in the matter. Since then the movement has not only surely and gradually developed throughout Austria and Germany, but also spread beyond the frontiers of those countries. Concurrently, some quite

INDEPENDENT MOVEMENTS

also originated amongst several other nations, and, though the purposes of these were not identical, they were very similar. Throughout Europe a transitional period may be said to have begun for the stage. Up to the present time, however, this period has nowhere attained its desired termination in any generally recognised reform. No definite new era has yet been opened, even in the countries where the movement first obtained a footing. Experiments have been numerous and various, and the failures have almost outnumbered the acknowledged successes. The boldest experiments, with their valuable achievements and costly failures, have, however, now been made, so that little remains to be done except the practical and systematic application of the experience gained. I may here at once say that I see no reason why the experimental or transitional period of the movement should not now be superseded by

A NEW AND DEFINITE EPOCH,

more especially if the matter is taken up by men who are free from fads of their own. The primary object of the originators of the movement—i.e., the closest possible imitation of Nature—has in several instances already been attained; but the Art world, and the cultured also, have found that this generally means crude realism. The mystery of the *mise-en-scène*, so necessary to a good scenic picture, is lost, and much also of the so-called "feeling" of the spectacle is lacking. Modern science and the most recent methods have already been employed to some purpose in the interests of the mounting, but stage managers and experts have found that an extreme modernisation of the scenic artist's auxiliaries often means more complication and uncertainty than was formerly the case. The expenditure incurred by extreme reform on the stage has also been found to be disproportionate to the

advantages gained therefrom. Both in the effects to be obtained, and in the methods to be adopted, practical reform is now gradually taking the place of radical reform. There can be no doubt that the exponents of the extremist movement have given the necessary impetus towards the improvement of the scenery, and future generations will be greatly indebted to them. As is usually the case, however, with any radical reform, the originators of the movement are scarcely likely to see their proposals adopted in their entirety. Nevertheless, they may be well satisfied that a moderate and practical outcome of their efforts is assured. And this is a great deal when we consider to what an extent the stage clings to tradition and convention, and repudiates any interference from outsiders, and how sweeping the proposed reforms appeared twenty years back. In England, the primary object of "stage reform," the imitation of Nature in the *mise-en-scène* of both opera and drama, has certainly found a fair amount of favour. This, however, is virtually due to the manner in which the public have associated the movement with that crude realism which has of late met with so widespread an appreciation in all branches of Art and letters. There has been no outcry against the

INDIFFERENT MOUNTING OF A PLAY.

and the realism of a spectacle has generally been more appreciated by an audience than its merits as a work of Art. "Stage reform" in this country is still associated with the sensational shipwreck, the race, or some other exciting item of the programme, and any popularity of the movement is practically due to the rendering of such realistic scenes. There have not yet been many instances where Art alone has helped the movement; but for that matter, perhaps, we have not seen many examples of a *mise-en-scène* on truly Art lines. With very few exceptions on a small scale, no extreme reform has been attempted in this country as it has in Austria and Germany. This is largely due to the fact that our actor-managers have to rely on their own purses or on those of some speculative financier, instead of having a certain proportion of public funds placed at their disposal. Our managers cannot afford expensive experiments. Too much risk is involved in the sudden departure from

TRADITIONS AND CONVENTIONAL USAGES,

and the most that can be undertaken is a gradual improvement of the scenery on the old lines. Such improvements, as distinct from extreme reforms, there certainly have been. Sir Henry Irving, of the Lyceum Theatre, is a notable exponent of moderate reform. The late Sir Augustus Harris, our leading *impresario*, has also done much in the gradual beautifying of his scenes on recognised lines, though he was frequently hampered by the fact that his productions required a too realistic mounting of the ultra-sensational kind. If we wish to see a *mise-en-scène* on Art lines, the outcome of extremist experiments, we have only the private stage at Bushey, where Hubert Herkomer, who at one time took a leading part in the movement in England, has at his own expense achieved numerous successes as a stage-manager and scene-painter. His miniature stage has been a working model from which our actor-managers have learnt much. Those who have had the good fortune to see one of the Bushey performances will have realised the difference between

NONDESCRIPT MOUNTING

and really artistic scenery. The general public little knows to what an extent the efforts of Hubert Herkomer have affected stage-management. Without his private experiments it is hardly probable that even Sir Henry Irving's stage would have shown such improvements as are now accepted as a matter of course. The curious feature, however, of the movement in England is not so much the absence of extreme changes in the scenery of our stages, as the almost entire absence of the application of modern science and modern methods in the interests of the stage management. Even the few exceptions which do exist generally concern only the substitution of electricity for gas in stage lighting, or some

minor or mechanical appliances to facilitate what is termed a "quick change." We are, for once, untrue to our national reputation for practical adaptations; and this, moreover, in a case where there is unlimited scope for energetic young engineers. In this country, again, the question of fire protection has not been associated with the movement, and the

ADVANCEMENT OF STAGE HYGIENE

seems scarcely to have been considered by our exponents of "stage reform." The former omission is, of course, quite in keeping with our traditions. We insure our property, and never consider the tremendous national loss by fire, nor do we take measures for the protection of life from fire until some great catastrophe has fallen upon us. But in the matter of hygiene, such neglect is unusual in a country which prides itself on its leadership in matters connected with sanitation. I now propose to show how far modern sciences and methods have already been brought into the service of stage management, and how the protection of audiences and of employees has been attended to, as far as the arrangement of stage is concerned. I do not intend to formulate any model code of requirements, or to describe any model stage of my own. This paper will solely indicate examples of stages erected during the last twenty-five years, in which attempts have been made to fulfil modern requirements with the means at our disposal at the end of this great

CENTURY OF TECHNICAL PROGRESS.

Earlier examples of stage machinery are not dealt with, as these can easily be explained from what I shall term a typical example of the English stage of to-day. There is little difference between the ordinary London stage of 1897 and the stage of 1700. The electric light may have incidentally taken the place of the lime-light and gas of recent years, or the candles or lamps of an earlier period, and, as I have observed, there may be some "tricky" mechanical detail or slight improvement in the minor gear; but such unimportant contrivances, I am afraid, complete the list of changes made. Even where the *mise-en-scène* is improved so much as at the Lyceum Theatre,

THE ANTEDILUVIAN WOOD STAGE

still remains. London, however, is not the only city, nor England the only country, where such lack of progress is observable. Modern stages are as yet rare abroad, except in the countries where "stage reform" originated. The only difference is that, while some of the oldest and worst stages in London have been known to show excellent mounting, good scenery abroad will, as a rule, only be found on a modern stage; and I will here take the opportunity to express my admiration at the perfect scenic arrangement of some of our plays, for the production of which our managers are so greatly hampered by their pitiable stage equipment, which compels them to have recourse to innumerable makeshifts. It would, however, be impossible for the London manager to do such excellent work if he had to change his play-bill daily, as is frequently the case on the Continent. The so-called "set pieces," for instance, could not then be so extensively used as they are now. It is probable that plays with long runs, in which the stage-carpenter's work becomes mere routine, have partly been the cause of our tardy progress in "stage reform," while the more complicated requirements of a continually changing play-bill must have assisted the movement abroad. Before going further I may mention that, with a view of studying

MODERN STAGE MECHANISM,

I have personally visited most of the theatres on the Continent possessing modern stages. Every facility was granted me by the authorities in every case, so that it is not without a full knowledge of the most recent developments that I have ventured on this paper. I must, however, as an architect, claim indulgence for any errors of expression in dealing with a subject which rightly belongs to the allied profession of the engineer. But, curiously to say, no English engineer seems to have as yet given the stage and its possibilities any special

* A Paper read before the Society of Arts on Wednesday, April 20, 1898.

thought. And what is more, no English stage mechanist nor carpenter has ever given us any publication dealing with the wood stage of old that might serve as a basis for my remarks. I am, therefore, practically broaching an entirely new subject or section in that vast world commonly known as "Technical Science." It would certainly be premature to attempt any rigid form of classification in so new a subject. The exact definition of the headings seems to me practically impossible. It would, however, be well to note that stages may readily be grouped

ACCORDING TO THE MATERIALS

of which they are constructed. I will therefore use the main divisions: Wood Stages, Wood-and-Iron Stages, and Iron Stages; and I will also make further subdivisions according to the power chiefly employed in working the appliances. These subsections are: Manual Labour, Hydraulics, Electricity. Owing to the almost entire absence of steam for motive power in connection with stage machinery, a separate division for appliances where steam is employed is not required. I first take the Wood Stage, then the Wood-and-Iron Stage, and lastly, the Iron Stage. Manual Labour is employed in all three, but electricity and hydraulics are only to be found in connection with the latter. Hence, the division of the subject is practically as follows:—

Wood Stage: manual labour.

Wood-and-Iron Stage: manual labour.

Iron Stage: manual labour, hydraulic power, electrical power.

Before, however, speaking of the stage, I must particularly call attention to the purposes of the various classes of playhouses for which scenic paraphernalia have to be provided. This may at first sight appear out of place, but I hold that if the purposes of the different institutions are borne in mind, it will greatly facilitate the appreciation of the circumstances which govern the construction and working of stages, and the structural as well as the economic difficulties which have to be overcome. I must also remind you of the necessity for studying the planning of a modern playhouse, more especially in regard to the stage and auditorium, for it should be clearly remembered that stage mechanism is not everything, but that the sighting and acoustic properties have to be considered. The outlines and dimensions naturally depend in the first place on the respective requirements of the stage-management or owner; but in the same way as the lines of the auditorium are essentially governed by the proscenium opening, the setting out of the stage is regulated by the height and width of this all-important feature. Many stages have so-called

REAR OR BACK-STAGES,

the dimensions of which are, however, dictated mainly by the facilities to be afforded for obtaining certain effects. Altogether I would emphasise that the engineer who wishes to give attention to the subject of stage construction must fully comprehend the requirements and possibilities, and it is absolutely essential that he should not only know the wishes of an individual client, but also the varied policies or makeshifts necessary under different circumstances, and above all in different countries. In my work "Modern Opera Houses and Theatres," and in various papers read before the Royal Institute of British Architects, the Architectural Association and elsewhere, I have already spoken of the very different manner in which theatre construction is treated by the architects of the Continent as compared with the way in which it is dealt with in this country. I have laid some stress on what I might almost term the difference of feeling which pervaded theatre Architecture, and it would not be out of place to repeat that there exists a considerable distinction between the artist and leader of his profession who is responsible for the Continental buildings, and his more practical confrère of our own metropolis. In the same way as there is a decided contrast in the character of those responsible for the erection of theatres in this country as compared with those on the

Continent, so there is a wonderful difference in the *personnel* responsible for the construction and working of the stage. With few exceptions, the construction of our stages is in the hands of a stage carpenter, who has had no exceptional advantages in the way of technical training, and whose position in the theatre is hardly better than that of any foreman of artisans. Abroad, even for the construction of wood stages, the commissions are given to fully qualified engineers who hold influential positions in their profession. More particularly in German speaking countries, there is a distinct calling of

STAGE ENGINEERING,

and though some few of the present leaders may have risen from the ordinary stage-carpenter, this profession is practically now only composed of men whose preliminary training alone often approaches that of our Royal Engineers. The body of stage-engineers includes men with exceptional powers of initiative, and the way in which the work is usually executed also displays, I am glad to say, such full consideration for the requirements of the scenic artist as is but seldom found where the interest of Art and science clash. In several instances even, the stage engineer takes also the position of "Director of Scenery" (Artistischer Leiter), and he is held responsible for all stage effects, including the design of the scenery, which is prepared under his supervision. This last-named combination of offices in one man I certainly do not hold with, and I would add that the arrangement is but rarely successful. I prefer to see the mounting of a play in the hands of a scenic artist of recognised standing, to whom the engineer and

THE PRINCIPAL OF THE PAINTING-ROOM

should be able lieutenants, and not collaborators on an equal footing. One mind alone should govern the mounting of a play. All the larger theatres of the Continent, it is noticeable, employ permanent engineers, whose appointment is mostly in the gift of the owner, and is held continuously, irrespective of any change in management, lesseeship, or varying appointment of scenic artist. It is not my intention to indicate how much the scope of the engineer depends on the individual in charge of the stage—in other words the stage-manager, lessee, or actor-manager, as the case may be—nor do I wish to speak of the various circumstances on which depends the amount of attention the mounting of a play receives, what effects are attempted, and what methods are employed. All this would lead too far, though, to repeat, it is essential for the theatre engineer to be versed in the varied requirements that he may be called upon to consider. I cannot, however, when speaking of the modern stage, omit some mention of expert opinion on scenic Art and its auxiliaries, for nothing has so materially influenced the recent development of stage mechanism as the candid criticism of recognised authorities. In the first place let us look at the question purely

FROM THE ARTIST'S POINT OF VIEW.

The distinguished artist, Hubert Herkomer, holds "that the real secret of perfect scenic art lies in illusion," i.e., in visual deception, or in not allowing the eye of the spectator to discern the means whereby the semblance of reality is obtained. Mere actuality will not accomplish this any more than good painting *per se*. It is in the attempt to get absolutely every requisite effect by painting that so much mystery is lost on the stage, for the scenic artist's art should be as much concealed as that of the actor. It should not be too manifest whether a background is painted or modelled, any more than that an actor is "made up" or appears in his natural form. Let us remember that an actor whose wig, for instance, is so badly fitted that his own hair is visible would not be tolerated for a moment; and yet the public will accept a street scene painted on a canvas that is moved by every draught, a

ROSE BUSH CUT OUT OF THIN BOARDS,

or a moon rising very quickly straight up the sky and then remaining stationary. Do not forget that it is quite safe to let down a wobbly sheet of canvas close to the footlights,

with a scene painted thereon representing breakers dashing over the rocks, and perhaps a sinking ship in the distance, to which the actor may have to refer in his speech. It is safe to have layers of canvas hanging from the "sky" like so much washing hung on a line, and certainly but few have ever questioned the prerogative of the "firmament" to come together at right angles in the corner. Why, it would take almost a volume to describe the many anomalies of scenery constantly observed on the London stage. Again, from the stage engineer's point of view, authorities abroad have published opinions which are not so very unlike Herkomer's. They assume that the desire for realism which prevades the nineteenth century has completely changed the ends and aims of modern scenic art. The decorative artist, like the actor, must know how to be in earnest. Actor and scene-painter alike must, above all, so labour that the audience shall forget that they are within the four walls of a theatre. But our old stage methods prevent the realising of such an aim, and the impression of an audience that they are only witnessing a play is often far too palpable. Why have the horizon cut horizontally by a crease, showing where the cloth has to be canted? Why let our

BEAUTIFULLY PAINTED PANORAMIC SCENES

jerk along according to the jerky manner in which the scene-shifter handles his drums? The panoramic scenes may cost £1000, and yet the simplest mechanical contrivance to ensure their smooth working is grudged and the effect entirely spoilt. Surely this is not as it should be. Does it not seem curious that in these enlightened times the theatre should still have to develop behind the back of society, and that the memory of the former condition of things still clings to matters theatrical? Truly the actor of to-day is treated well enough by society; he is no longer a vagabond and a stroller. Nevertheless, the stage still occupies an exceptional position; it is still to a large extent ignored by the State and by Science. Let us look at the matter even from the most prosaic point of view—its commercial aspect. Science has turned industrial. She tins meat and condenses milk. But she has not troubled herself about the stage. We employ the same wasteful methods as if modern science were non-existent. Surely it is time to wake up to the necessities of modern entertainment.

A large number of drawings, photographs, and sketches of stages were shown at the close, as lime-light views, and these were explained and criticised by Mr. Sachs. Reference was also made to a collection of drawings exhibited in the Lecture Room.

A LARGE window, costing upwards of £300, is about to be placed in the west front of the Church of St. Ignatius the Martyr, Sunderland.

THE '91 Art Club will hold their annual exhibition of members' works at the Modern Gallery, 175, Bond Street, from May 4th to May 8th inclusive.

THE Hammersmith Vestry has selected "Jarrahdale" Jarrah as the material for paving the Goldhawk Road. Blocks to the extent of 650,000 have been ordered.

A NUMBER of repairs are being carried out on St. Michael's Church, Linlithgow, in connection with the scheme of restoration. The west window is at present being restored, and when completed a stained glass memorial, by Messrs. Ballantyne, Edinburgh, will be erected.

THE gift of a new altar table has been made to the parish church of St. Cuthbert, Lytham. The altar is of oak, carved in Gothic panels in keeping with the design of the reredos, and is the work of Messrs. Jones and Willis, of Birmingham.

At the All Saints Vestry, Evesham, considerable discussion took place as to the proposed restoration of Abbot Reginald's gateway, leading into the churchyard. This is the oldest specimen of Norman Architecture connected with the abbey, and for a long time has been crumbling away. It was stated that large stones had been carried away, and people attributed it to the Americans.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
April 27th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Government has decided, as regards the new War Office and public buildings, to place the planning in the hands of Sir John Taylor, who will consult the heads of departments as to their requirements. The Architecture of the structures which will clothe these shells will be under the direction of Mr. George Aitchison, R.A., as president of the Institute of British Architects. It could hardly be in better hands; for no one has a higher conception of the duty which lies at the door of every Government to adorn, and not disfigure, the greatest city in the world. The public may rest assured that those he recommends to prepare designs will be those who are thoroughly qualified to attain this object.

A SERIOUS piece of vandalism has been suggested in the form of a scheme for widening Waterloo Bridge. The proposal is to add to the width by equipping the viaduct on each side with a new footpath, supported by buttresses to spring from the existing piers. In this way the whole width of the structure as it now is would be converted into a roadway for vehicular traffic, and at the same time the appearance of one of the most perfectly proportioned bridges in Europe would be hopelessly ruined. The scheme, however, is not likely to be adopted. It is a curious fact that until recent years the construction of bridges in London, with the exception of those in the City, was a matter of private enterprise. Most of the great bridges over the Thames were not acquired by the public authorities and freed from toll till 1879. Waterloo, which was erected between 1814 and 1817, cost a million sterling to build, while Vauxhall, the first iron viaduct by which the river was ever bridged, cost, at about the same period, just a little over a quarter of that sum. This old iron structure, which has neither beauty, nor convenience to commend it, is now about to be demolished, and in course of time its place will be taken by a successor in the style of the bridge at Westminster.

It is to be hoped that there is no truth in the rumour which credits the Government with the intention of locating science museums and laboratories on part of the site reserved for the South Kensington Museum. The space on the east side of Exhibition Road is barely sufficient for the erection of the galleries needed for the proper accommodation of the Art collections, and to devote any part of the site to buildings for the use of the science section would be to prepare at no very distant date for a worse condition of congestion than that which is at the present time afflicting the

half-developed museum. The want of a really adequate building, large enough to show to reasonable advantage the many fine things that are already the property of the nation, is acute enough, but what is even more necessary is a sufficient provision for future expansion, so that there may be no possibility of any revival of the old argument that the operations of the Museum must not be extended because there is no room in it to show the things it actually contains. The expenditure contemplated now must be something more than an atonement for years of parsimony; it must be an insurance against future abuses.

WHAT makes more ridiculous the suggestion that art and science are to be crowded together on this one small site is the fact that there is already in the possession of the Government a piece of land amply large for all the science buildings that are likely to be wanted for many years to come. Not so long ago the vacant space on the west side of Exhibition Road, and opposite the Imperial Institute, was bought for £75,000, so that a separate science museum might be erected; and there is no intelligible reason why this particular site should not be utilised and the original idea of housing the art and science sections in different buildings should not still be carried out. Nothing would be gained by crowding them together under one roof; and if this crowding should result, as it seems inevitably bound to do, in an impairment of efficiency all round, half the value of the present scheme of extension, and half the use of the liberal expenditure proposed, would be destroyed. If the Government scheme for the laying out of the £800,000 voted is found, when it is laid before Parliament, to be so wanting in judgment, very strenuous efforts will have to be made to secure its thorough revision.

THE Corporation of Plymouth, desiring to commemorate Her Majesty's Jubilee, determined to build an Art Gallery and Museum, and applied to the Local Government Board to sanction a loan of £22,000 for that purpose. Accordingly, a Royal Engineer—Major-General Crozier—has been sent down to judge as to whether such a building is needed. The General, the town clerk, and the architect of the museum seem between them to have engaged in a somewhat heated discussion. The General complained that no plans and estimates had been sent up; the town clerk said he had followed the invariable practice; the architect stated he had acted in several similar cases when a loan had been applied for and granted, and had never been asked for quantities before; and the General closed the inquiry by the dignified expression of opinion that he supposed that architects considered themselves artists, and therefore as not being bound by the ordinary rules of business. The architect refrained from the obvious retort that the Royal Engineers, who appear to have a monopoly of this sort of inquiries, were hardly a body from whom to gather an expert opinion as to the needs of a town like Plymouth to have an Art Gallery.

AFTER being closed for about six weeks for repairs, the Church of St. Mary-the-Virgin, Aldermanbury, has been reopened. The nave ceiling is of the barrel-vault type, and has been tinted a delicate ivory, relieved with bands of light sage green and terra-cotta, the main ribs being light terra-cotta with cream-coloured enrichments, and the modelled plaster work light green and fawn colour. The main cornice has been treated in light shades of terra-cotta, ivory, and cinnamon, with the enriched work gilded. The aisle ceilings are in harmony with that of the nave. The general tone of colour on the walls is a medium Pompeian red, the upper part relieved with panelled ornamentation and bands of lighter colour and stencilled decoration between the windows. The arches of the windows have been formed into panels in two tints of red. The east end wall looks very effective in a light peacock green ground with stencilled diaper ornament in cream colour and light green, and emblems on either side of the large east window in

painted panels of an architectural character, with bands of ornament on a gold ground above and below. The lower part of the reredos has been decorated with diaper ornament in light green, terra-cotta, and gold on a cream ground, with tapestry hangings on either side. The general aim has been to keep all the decorations in harmony with, and subordinate to, the architectural features of the buildings, which date from the year 1675, having been erected by Sir Christopher Wren after the great fire. Three pairs of old oak doors, the only remaining vestiges of the original woodwork, have been once more restored to the light of day, the paint with which they had been thickly covered having been removed from them and the original surface laid bare. An interesting discovery was made with regard to the front oak doors. They had been concealed under a deal painted casing, and on the removal of this a large number of lead bullets were found embedded in the oak, no doubt the result of some riot of former times. The works have been executed from the designs and under the supervision of Mr. Eric Collins, of 31, Great St. Helen's, and the contractors were Messrs. Campbell, Smith, and Co., 75, Newman Street, Oxford Street, W.

IN the destruction last week of the Metropolitan Tabernacle by fire, a well-known building has vanished. In less than one hour the edifice, 146ft. long by 81ft. broad, 62ft. high, and with accommodation for 6000 persons, was completely ruined, the damage being estimated at £35,000. Various theories are discussed as to the cause of the outbreak, but an overheated flue is the explanation which finds the most general acceptance. The extraordinary capacity of the building was due to the fact that the two galleries completely encircled it. The form was elliptical, the roof internally was slightly domed, and, as Londoners know well, the portico was, and is yet, for though seriously damaged it has not fallen, supported by handsome columns. Mr. Spurgeon objected to pulpits, consequently there was none in the Tabernacle. Instead there were two platforms, one rising out of the other.

FIRES in places of worship are fortunately rare in this country, but this Metropolitan Tabernacle calamity suggests the inquiry whether due attention is always paid to the safety of congregations. Elaborate precautions against fire are now enforced, especially in London, upon the architects and builders of places of amusement, as well as upon their responsible managers; but danger exists wherever large masses of people are assembled, and a panic is as likely to be disastrous in a church as in a theatre. We do not know what provision existed in the Metropolitan Tabernacle for the quick egress of the congregation in case of an alarm, but it is notorious that there are very many churches from which it would be difficult to escape within a few minutes. It is much to be wished that this calamity, by which, happily, no single life was lost, may draw attention to the necessity of taking needful measures wherever they are required.

A WONDERFUL mansion has just been completed in New York for one of the great millionaires there, Mr. E. T. Gerry. It is at the corner of Fifth Avenue and Sixty-Fourth Street, a situation almost the ne plus ultra of desirability. It is entered by a magnificent porte cochère of wrought iron and plate glass; within is a superb double staircase composed of red porphyry, each step, it is said, costing £500; while knights in armour rather incongruously hold branches of electric light. The rooms are all in accord with this grand staircase, with its black and gold balustrade. One drawing-room is octagon and domed, the decorations being in the Watteau style, by Paris artists; other drawing rooms, galleries, and libraries are in different French periods, with a strong inclination to the Renaissance, dear always to the hearts of the nouveaux riches. The mansion is said to have cost £250,000.



VIEW OF STAIRCASE AND ENTRANCE TO LIRRARY, WELBECK ABBEY. H. WILSON, ARCHITECT.



BRITHDIR CHURCH, N. WALES. H. WILSON, ARCHITECT.

HAPPILY it is rarely that a serious catastrophe at a building in course of erection has to be recorded, but one happened in London last week that will excite no small amount of attention amongst architects and contractors. The scene was a block of mansions being erected at the back of Albany Mansions, Victoria Street. The new buildings face on Orchard Street, and consist of a red brick and stone structure, seven stories in height. They were nearly completed, as the roof was on and most of the floors had been laid. At the time of the disaster, on Thursday last, some thirty workmen were engaged in the interior, preparing for the carpenters, fitters, and painters. At five and twenty minutes to four a loud, rumbling noise was heard, which lasted for about half a minute, and the whole building was enveloped in a cloud of dust. When it cleared away men were seen crawling through the windows and hanging on to the window-sills, and it was discovered that the roof had fallen through and carried with it each successive floor. A huge mass of debris, consisting of iron girders, scaffolding, plaster, and brickwork, lay piled up from the basement to the level of the second floor windows. About a dozen men who had been working on the ground floor had time to rush out of the building before the falling mass reached them, but most of those on the upper floors were crushed beneath the ruins. Seven men were killed and several injured. Viewed from the outside, the building presented an extraordinary appearance. Besides a huge fissure in the stuccoed coping near the roof, there were various cracks from the top of the building to the ground. In an interview the architect of the building stated that the accident was caused by the collapse of the concrete roof. The men were putting the finishing touches to it, and were knocking away the wooden supports when the structure collapsed, killing the men actually underneath and bringing the other floors in succession to the basement. It is stated that these men acted contrary to orders, and before the concrete had properly set.

SOME idea of what the new premises of the Birkbeck Bank will be like is now possible on account of the removal of the hoarding from the completed portion in Southampton Buildings, Holborn. The magnitude of the building, however, is not yet wholly revealed. An extensive frontage in Holborn, stretching from Staple Inn Buildings, by Holborn Bars, to the premises of the London and County Banking Company, has yet to be erected. This will be commenced forthwith. The new building has been in course of erection for six years, and may be described as a vast experiment in glazed terra-cotta and glazed tile work. The huge block that is completed consists on the west side of four lofty stories of glazed work, with part of the flat portion of a very pale stone tint, the other being of a darker ochreous hue. From the top of the second story spring rows of pairs of columns of a subdued green, and beneath these is a series of boldly executed medallions of men eminent in Art, science, invention, commerce, and banking. Some blanks between are left for the introduction of the electric light. The south-west corner has been carried up higher by the addition of a tower with green fluted columns. On this is the date when the Bank was founded, 1851. Beneath are emblematical figures of Europe and Australia, and lower down a figure of Commerce flanks one of Britannia. Round the corner towards the old premises is modestly placed a medallion of Dr. Birkbeck. The new premises will be extended in this direction, and will cover the site of the old ones, and the completed portion of them, devoted to bank purposes, will, it is said, be opened for business early in August.

FOR spaciousness this bank interior will be unique. A large vestibule leads to a lofty and much larger hall, where a lift, fitted with mirrors, and an iron-wrought staircase, leads to a vast gallery running round the base of the enormous high-pitched dome of the public banking chamber further on. By these means the upper offices and rooms of the bank are

approached. The great banking chamber is circular. Its internal walls are covered with glazed tiles, generally of a pale buff or yellowish colour, relieved with other tints. The extreme top of the internal dome is lined with rich gold mosaic; then come large sections of glazed tiles in relief, pierced with oval openings for light; then, lower down, all round, are elaborate paintings; and, beneath these, wide and elegant doorways. The gallery itself is supported on great brackets masked with enamelled pottery representing heraldic animals. The pictures illustrate such subjects as electricity, plate-printing, steel-forging, the memorable run on the Birkbeck Bank in 1892, the miser, shipping, agriculture, a building society, and so on. To a figure of Apollo also great prominence is given. Downstairs is the massive bullion room, said to be dynamite proof, and the deed room, which can be completely isolated by water. The architect is Mr. Vernon Knightley.

It is said that the number of pictures sent to the Academy this year approached fourteen thousand. As only about one in fifteen could be hung in the galleries, the process of sifting out the very little wheat which was hidden in so large a mass of chaff must have been unusually exacting and laborious. In the face of such a stupendous task, the Academy authorities might well set themselves to consider whether no device can be invented to check the anxiety of the irresponsible blunderer in Art to force his ridiculous productions upon the attention of the Council. In all probability a definite reduction in the number of things which any artist may submit would have the effect of appreciably raising the average of merit in the whole mass of work sent in, and it would certainly diminish the labour of selecting what deserves acceptance.

FOR it must be remembered that the people who offend most are just those who have not the remotest chance of seeing their efforts placed in the Exhibition. With the exception of the portrait painters, there are few artists of skill or repute who send more than three or four works annually to the Academy. A sincere worker knows that it is impossible to produce as many as eight things of really high quality within the short space of twelve months, and so, instead of spreading his energies over more than he can accomplish, he concentrates himself on just enough to bring out his fullest capacity without wasting his power. But the amateurs and raw beginners, who have no standards, and understand nothing about artistic obligations, multiply their absurdities, and insist upon wearying with them the long-suffering Academy authorities. If the number of things which it is possible to submit were reduced by half, there would be no appreciable diminution in the amount of good work sent in, but half the rubbish would disappear.

AS the business proportions of New York become more and more congested, additions are made to the immensely tall buildings for which the city is becoming famous. Each year architects are becoming more daring. The year 1897 saw the completion and occupation of a building of twenty-six stories. It stands on one of the most valuable sites in the city, on Broadway, between Wall Street and the Post Office. New Yorkers know it as the St. Paul Building. Its roof is 308ft. above the roadway. When this building was planned it was popularly thought that the climax of high building had at last been reached. The year 1898, however, will see the completion of a still taller structure—a building of twenty-nine stories, the towers of which are to be 382ft. above the street level. Until about 1880 New York buildings were no higher than those of London. The number having more than five stories was at that time less than a dozen. But since 1880 these great buildings have been rising on all sides. For about ten years the limit seemed to be fifteen stories, but in the early nineties twenty-story buildings began to tower up, and in the last few years buildings have mounted higher and higher, until one syndicate of capitalists, more

daring than any of its competitors, has constructed the building of twenty-nine stories; and as architects and builders declare that they are not yet at the end of their resources, the present year may probably see the planning of a structure of thirty stories or over. Architects are willing to plan for even forty-story buildings, if capitalists will come forward to finance them. Before the bricklayers or the masons begin work, the buildings look like enormous cages. The brickwork bears none of the weight. It is used only as a casing to keep out the weather. During business hours people equal in number to the population of a good-size town are housed in many of these New York buildings; and the crowds about the elevators at some hours of the day are as great as those at some of the busiest of the underground railway stations in the City of London.

AN interesting discovery of frescoes has just been made in the Senatorial Palace at the Capitol. For several days workmen had been employed to remove a wall which showed signs of weakness, and in the course of demolition a number of mediæval frescoes were discovered, one of which represents the Annunciation. The colours are extremely vivid and well preserved. When the operations have been completed it is hoped that further discoveries will be made which will enable archaeologists to form an accurate idea of the internal and external decoration of the Senate in the Middle Ages.

AFTER a period of disarrangement extending over several years the famous Gobelin tapestries of Haddon Hall are complete again. Some time ago it was discovered that the "Æsop's Fables" panels in the state bedroom—these panels formerly belonged to Charles I., but his crest has been removed now—were sadly in need of preservation. The Duchess of Rutland placed the delicate work of restoration in the hands of a London lady who has made tapestry her study. The tapestries now look quite fresh and clean, all the decayed stitches have been replaced, and a new lining added to each panel. The tapestry at Haddon is especially cared for by the Duchess of Rutland, and, thanks to her Grace's attention, the whole of it is now in excellent repair. Much of it is of unique value because of its curious style of manufacture—it appears to have been woven in small pieces, which were afterwards sewn together. The fine bas-relief overmantel, representing Orpheus charming the animal world, in the royal bedchamber, has been "freshened" with a coat of stone colouring, and the ceiling and picture frames are aggressively assertive of their recent contact with the whitewasher's and painter's brushes—aids to the comforts of modern domesticity which are incongruous within the ivy-clad walls of Dorothy Vernon's romantic bower.

A NEW source of infectious dangers discussed at the last meeting of the Paris Academy of Medicine, will tend to the abolition of wood in floor construction. Two learned professors attributed the spread of the commonest infectious disorders, particularly diptheria, pneumonia, and consumption, to the dust on the floor. Apparently the only way of absolutely avoiding this danger is to exclude wood altogether from the substance of floors, or to cover the wood with a coating of asphalt. Meanwhile the French military authorities are beginning to employ tar as a coating for barrack floors, and thereby earning the approval of the Academy of Medicine.

THE present exhibition of the New English Art Club is one of unusual interest. In it the Society seems to justify itself upon the lines on which we fancy it to have been originated—those, that is, of a certain return to first principles in Art, and a recognition of the fact that the Art of painting is mainly comprised in two things: that the painter should see, vividly, acutely, and individually, and that he should master, for the expression of his vision and not according to the formulae of academic persons, the extremely difficult, flexible, and expressive Art of painting.

Surveying & Sanitary SUPPLEMENT.

APRIL 27TH, 1898.

Practical Carpentry and Joinery.*

BY GEO. ELLIS.

JOINERY.

(Continued from page xlii.)

THE method of finding the position of the centre of a swing door is illustrated in Fig. 108. Draw the plan of the door closed, also the post, then draw the plan of the door in the position it will occupy when opened to its fullest extent. In the diagram this is shown at an angle of 90deg. Allow a little clearance from the post to avoid marking the polish when opening, and draw diagonals on the rectangular figure produced. The point of their intersection will be the centre required, marked P in the figure, with P A as radius, and P as centre;

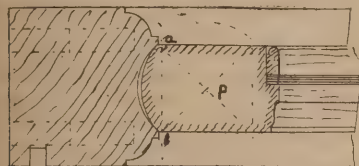


FIG. 108. METHOD OF FINDING "CENTRE" OF SWING DOOR.

describe the arc $a b$; this will be the edge of door. Step the compasses $\frac{1}{2}$ in. nearer the post, and set to point, a as radius; describe a second arc, the outline of the post. This will provide the necessary clearance to prevent the door squeaking when opened. The front edge will be described from the centre P, with the width of door as a radius, the striking post to be left square inside. The glass panel is secured by means of $\frac{3}{8}$ in. beads, fixed with brass cups and screws, and bedded in wash leather. It should not rest upon the middle rail throughout its whole width, but only for an inch or so at the hanging stile, and at the top front corner; by this means its weight will not tend to rack the door.

The bollection mouldings in the lower panel are screwed at the mitres, and secured to their bed by screws inserted from the back of panel under the beads, which are afterwards planted in. No glue should be used under the mouldings, and the screw holes should be slotted to allow the latter to shrink. Bollection mouldings should not be rebated over the framing more than $\frac{1}{4}$ in. in consequence of the difficulty of keeping the marginal part down without the aid of glue, which, in such cases, is opposed to sound construction, as, there being considerable substance in the moulding, it will expand and contract with the weather, as will also the framing, and if fixed at the edges either the thinnest member of the moulding will split off, or the mitres will be opened. A Gothic door with four centred head is shown in Fig. 110. These doors, not now so much used as formerly, are suitable for churches and public buildings. It will be observed that the mouldings are stuck in the solid, and stopped

at the sight lines of the intersecting rails, &c. Abject copyists of mediæval work stop their mouldings everywhere, irrespective of the necessity, but the intelligent designer, comprehending the reasons of the early workman for so doing, will, now that the same conditions no longer exist, vary his treatment accordingly. In the middle ages the method of scribing was unknown, and the ruder tools of the workman prevented the successful use of the compound mitre, and his ignorance of methods of seasoning and preserving wood from the action of the air, justified him in laboriously and clumsily stopping all his mouldings at the shoulders; but to do so now, when all those hindrances to good work are removed, is an absurdity. Confine the square stop to those places where shrinkage of the parts would disarrange the joint, as at the top edges of rails and on the stiles between the rails, but where this would not occur, as at the top ends of muntings, use the scribe joint, which is both more slightly and effectual. The upper edges of the rails are chamfered to prevent the accumulation of dust. The joint at the crown of the door is usually made with a hammer-head key, as shown in the enlarged detail (Fig. 112), and also cross-tongued. At the haunch joints a handrail screw is sometimes used, as the key is considered unsightly, but the latter makes the more homogenous joint. The shoulders at the foot of the munting should always be square, not bird's-mouthed over the chamfers, as any shrinkage of the rail will spoil the joint, and there is also considerable danger of splitting the munting when champing up.

Fig. 113 is a part elevation of a pair of sliding fire-resisting doors, made by the writer for one of the national museums, and although it has never been put to the test, it will probably, if occasion arises, prove more worthy of its name than many of the so-called iron fireproof constructions. Each door consists

essentially of two stout skins of English oak, $1\frac{1}{2}$ in. finished, enclosing a well-rammed body of slag wool, an inch in thickness; this is interlaced with steel wire, so that in the event of one skin getting burnt through, the wool will remain in position to protect the other. The stiles and outer rails are of solid oak, $3\frac{1}{2}$ in. thick, the meeting stiles rebated $\frac{3}{4}$ in. The doors run on wheels let in the solid rail at bottom in a channel sunk in the floor, lined with iron, the channel being filled up close to the door with concreted slag wool to prevent flames

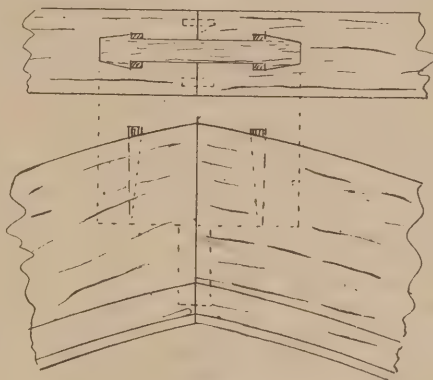


FIG. 112. A HAMMER-HEAD KEY JOINT.

creeping under. The top wheels run on an iron angle bar cemented into the stone wall, another flat iron bar is inserted in the arch over the opening, and projects $\frac{1}{2}$ in. from the face of the wall. A groove to receive it is worked across the doors, similar iron bars, sliding laterally about $\frac{1}{2}$ in. on studs fixed on the back edges of the stiles, fit into corresponding grooves in the wall, and effectually shut off communication between the rooms.

(To be continued.)

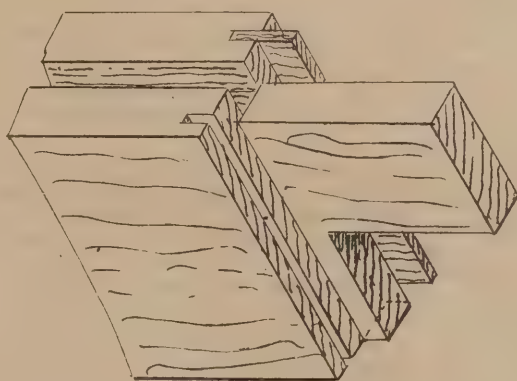


FIG. 109. SKETCH OF SHOULDER TONGUES.



Artesian Bored Tube Wells.*

BY MAURICE OCKENDEN, JUN.

FROM the earliest records, we find the obtaining of water from wells seems to have been known. The earliest form of wells were probably rude excavations in the sides of hills, where the water rose to within easy reach of the surface; but the opinion of some is that the actual well sinking took place soon after the discovery of metals. However, we can see at the present time in the East many ancient wells which have passed through both rock and quicksand. Mr. Ewbank (as mentioned in Hughes' book on Water Works) asserts: "that to the constructors of ancient wells in the East, we are indebted for the 'only' mode known at the

from travellers' accounts we learn the practice of ancient inhabitants was to dig square wells 180ft. to 240ft. in depth through the vegetable soil, clay and marl, until the limestone rocks were reached, and then boring 4in. to 8in. in diameter were carried down. The probable reason why these wells were made square is the convenience of strutting. A French missionary, Abbe Imbert, has given an account of the wells that are sunk in China, and in Dougousee's "Guide du Sondeur," states: "There exist in the province of Ou-Tong-Kiao many thousand wells in a space of 30 miles long by fifty broad." These wells, by the description, were apparently bored by a similar process as that known as the Mouton system, which has been used so much in France. As may be imagined with the crude geological knowledge at their disposal, these wells often proved unsuccessful; sometimes natural gas

however, many wells were bored, principally in the Wolds near South, and in the Thames basin, near Tottenham. The artesian well at Grenelle, near Paris, was really the first to draw the attention of the public to the system of bored wells as now used, not only on account of the success of such boring, but also the discussion and investigations to which it gave rise. The title of "Artesian" should only be applied to borings where (as in Artois) the water overflows at the surface. The bored or drilled well is not only used for water supply purposes, but is an effectual and economical means for ascertaining the possible strata in connection with deep foundations—such as railway work; also for prospecting for minerals, as well as in sinking pioneer holes to ascertain the quality and quantity of certain water supplies prior to carrying out extensive works. Because water has been found in one instance where a natural supply was not expected, it is not a guarantee that a similar supply of water, and at the same depth, will be found in the neighbourhood, as it requires often a careful investigation before expensive borings are commenced. There are many architects who look upon

A PIONEER BORING

as waste of money. So it is, where sufficient data is obtainable without; but there are many districts in this country where water varies in depth and in yield. In such cases it is necessary to gauge the well during the summer and autumn, and also to test the yield by pumping. This will give the architect or engineer and the contractor something definite to work upon for the well, for the permanent supply. Before referring to the systems in boring and drilling, the driven tube well, or, as it is popularly called, the Abyssinian Tube Well, may be mentioned as being a useful means of obtaining water from shallow depths, this being the mode adopted during the Abyssinian Expedition of 1868. This process was invented by an American named Newton, and patented by Norton, in London, 1868. The bottom tube is fitted with a steel point, with perforations about 3ft. up from the point, and driven by means of a monkey, lengths of tubes being added as the work proceeds. If driven wells are preferred, it is considered desirable to insert a moveable point, so that with a special tool it can be pushed on one side when the stratum becomes too stiff to allow the tube to be driven safely, and then boring tools are inserted to take out the debris in the ordinary way. Driven wells are not always desirable, as the tubes are liable to split under the percussion, which would make the supply open to contamination with any possible soakage around the tube near the surface, and so defeat the object of a tube well. Where water is found at shallow depths (in soft sandstones, &c.), it is often found a cheaper means to drive a few wells somewhat close together, and connect all into one suction, rather than go to the expense of boring a deep hole where the geological conditions are uncertain. This system is not often adopted, as the quality of the supply, coming from so shallow a depth, cannot be depended upon if surrounded by buildings, &c. It is usually impracticable to drive a larger tube than 2in., which means that if water fails to rise to within 25ft. from the surface an ordinary pump is useless. The means adopted for boring or drilling wells are many, but if the following systems be taken they will embrace the most important:

1. English, hand and steam boring with rods.
2. Danish, or Fauvelle system (hydraulic).
3. Canadian, or American rope system.
4. Diamond boring.

The English hand-boring has been the sole method in use in this country till quite recently, and still very largely used. An engine resembling a hand-pile driver is very much used, and is sometimes made with four iron pipe legs, braced together to form a derrick as shown for borings say to 300ft. For large diameter borings, and for great depths, it is usual to build a scaffolding or provide a strong derrick with steam power for working the winch to facilitate the connecting of both bars

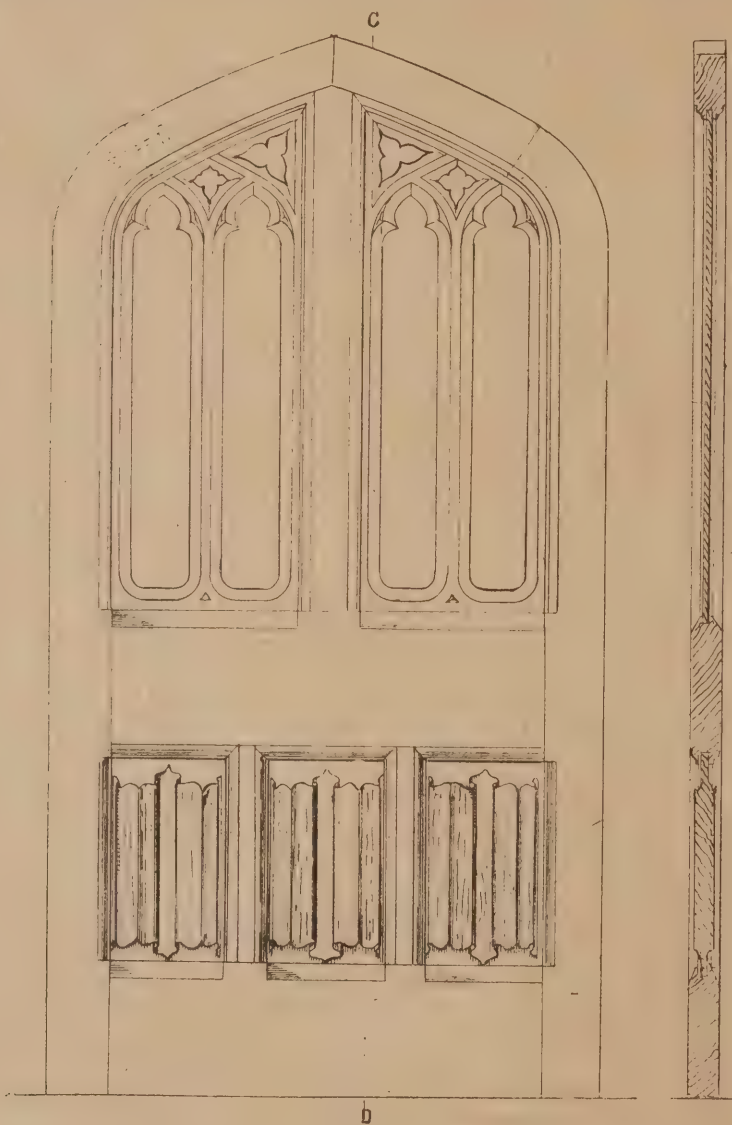


FIG. 110.
A GOTHIC DOOR.

FIG. 111.
SECTION ON C—D.

present time adopted for sinking wells through quicksands, by the employment of a curb, which settles and sinks down as the excavation proceeds."

BORING FOR WATER

is also of very ancient origin, and it has been reported that in Egypt there exists borings which date back some 4000 years, and these supply water to fountains even to the present time. The oasis of the Libyan Chain are sites of these borings. In opening some of these ancient wells or borings it was found they were lined with brick or wood, but the actual method used in lining is not known. The oasis of Thebes contains flowing wells, and

was obtained, which gave them the appellation "fire wells." Three years was the usual period taken for sinking. In Europe the simple means of sinking shafts to reach a supply of water seems to have prevailed. The modern means of boring for water originated in the province of Artois, France, and

THE MOST ANCIENT WELL

constructed with the boring tool is at Silliers, in the Artois, dated 1126. In England the first record of boring is to be found in "Parentalia," or "Memoirs of the Wren Family," where it states Sir Christopher Wren adopted this precaution to ascertain the solidity of the foundation of St. Paul's Cathedral, where the original surface of the ground had been disturbed. Towards the end of last century,

* A paper read before the Civil and Mechanical Engineers' Society.

and pipes. The boring tools generally used in this system are plain chisel, tee chisels, twist bit, and open and close auger. These are all fitted with male ends and screwed parallel into the sockets of solid boring bars, which are usually made square, the top bar being fitted with swivel attached to a rope and connected over derrick on to winch, where, either by steam or manual power, the tools are surged or brought to surface. To bore by this hand-system takes a much longer time, although it is more economical than the other schemes for small bore-holes, say 3 in. to 6 in. in diameter, and to 400 ft. in depth provided the strata is favourable. To bore through rock is very tedious and slow by this system. The debris is brought to the surface with the auger, but not in a solid core, as the strata is pulverised by the chisels. The Danish or Fauvelle system is that which is being used very successfully for penetrating clays, soft rocks, and clays, although some may raise an objection to the

absence of a nice core being produced, which renders it less valuable for prospecting. Although this system is called Danish, it really is American, as it is used more there than in Europe, and has many improvements added to the original idea, both in Canada and in the United States. The Americans having such a demand for economical and speedy apparatus to obtain oil and natural gas from deep borings, have been the means of bringing out many improvements in well-drilling machinery, which greatly facilitates labour. In boring through sandstones, or even running sand, this wash-out, or hydraulic system, is particularly efficient. In Alabama, for instance, through the introduction of a relative, we carried down several borings with this system, and found it to be even better than the Canadian or American Rope Rig, which was in use close by.

(To be continued.)

Surveying and Sanitary Notes.

THE Liverpool City Council has applied to the Local Government Board for sanction to borrow £38,000 for the purchase of a site at Fazakerley for an infectious diseases hospital.

A LOCAL GOVERNMENT BOARD inquiry has been held at the Town Hall, Bexhill, into the application of the District Council to borrow £4500 for the purpose of drainage at Little Common.

A LOCAL GOVERNMENT BOARD inquiry has been held at Aberdare, respecting an application by the Urban District Council for sanction to borrow £15,000 for works and water supply under the Aberdare Local Board Waterworks Act, 1894.

MEMORIALS to two celebrated sanitarians, Sir Edwin Chadwick and Sir Benjamin Ward Richardson, are being promoted by the Sanitary Inspectors' Association. The object is to provide funds sufficient to give annual premiums, in money, books, medals, &c., to students in sanitary science at technical colleges.

AN inquiry has been held relative to the application of the Newmarket Urban District Council for power to borrow £45,000 for new sewerage works.—Mr. Frederick Beesley, M.Inst.C.E., of the firm of F. Beesley and Son, said that the new scheme would carry the sewage of the district by gravitation through Exning to the extreme north of the district. They proposed to deal with it at the outfall by the bacterial system. They would have six tanks, each 50 ft. by 37 ft. 6 in., for day use, and one tank 104 ft. by 75 ft. for night use. The objection raised by the Burwell Fen Drain Commission to the discharge of the effluent into the Burwell Fen might be met by discharging the whole effluent into the New River. The quantity of effluent water discharged into Burwell Fen would be imperceptible, and would be rendered practically innocuous.

AN inquiry has been held in the Town Hall, Dewsbury, by inspectors from the Local Government Board, into an application by the joint hospital board, composed of representatives of the Corporation of Dewsbury and the Urban District Councils of Heckmondwike, Ravensthorpe, Soothill Upper, and Soothill Nether, for power to borrow £22,000 to enable the board to erect a hospital for infectious diseases on a site in Soothill Nether, known as Chickenley Wood, and which adjoins the sewage farm of the Dewsbury Corporation.—The Town Clerk explained that in November, 1896, the board invited competitive designs from architects for hospital buildings, and in the following month they accepted those of Messrs. Holtom and Fox, of Dewsbury. In the opinion of the board, the site was in many respects admirable.

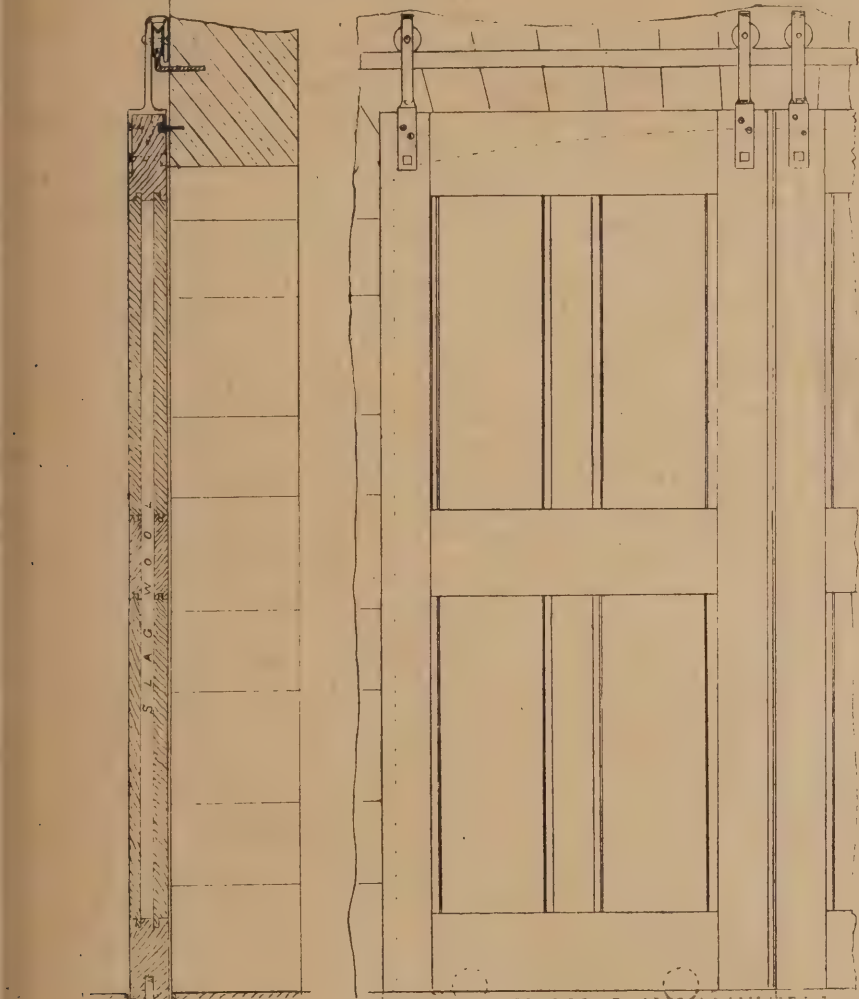


FIG. 113. SECTION.

FIG. 114. A SLIDING FIRE-RESISTING DOOR.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
April 30	Charleville, co. Cork—Erection of Church	Rev. P. J. O'Callaghan, P.P.	M. A. Hennessy, 74, South Mall, Cork.
" 30	Consett, Durham—Erection of Shop, &c.	J. Cockburn	W. S. Shell, Architect, Taylor-street, Consett.
" 30	Falmouth—Erection of Pair Villas	G. Thomas	W. Smith, 38, Lemon-street, Truro.
" 30	Knaresborough—Erection of Houses	Mrs. J. Walker	J. G. Brown, Architect, Knaresborough.
" 30	Newmarket-on-Fergus, Ireland—Church Roofs, &c.		R. Fogarty, Architect, Henry-street, Limerick.
" 30	Sheffield—Erection of Twenty Almshouses	Trustees	W. R. Bryden, 1, George-street, Buxton.
" 30	Sheffield—Erection of Store	United Gaslight Company	F. W. Stevenson, Offices, Commercial-street, Sheffield.
" 30	Sheffield—Addition, &c., to Meter Shops	United Gaslight Company	F. W. Stevenson, Offices, Commercial-street, Sheffield.
" 30	Whitchurch, Glam.—School	School Board	R. and S. Williams, Architect, Wharton-street, Cardiff.
May 1	Lowestoft—Erection of House		Nelson Chambers, London-road, Lowestoft.
" 1	Alton—Erection of Brick Tank	Gas and Coke Company	F. Barnley, Manager of Gas and Coke Company, Alton.
" 2	Wednesfield—School Building	School Board	F. Hunter, Lines Lich Gates, Queen-sq., Wolverhampton.
" 2	Huddersfield—Erection of Four Houses	Industrial Society	J. Berry, 9, Queen-street, Huddersfield.
" 2	Southowram, Halifax—Erection of Four Houses		Jackson and Fox, 22, George-street, Halifax.
" 2	Turriff, Scotland—Additions to Schools	School Board	J. Duncan and Son, Architects, Turriff.
" 2	Darlington—Stables, &c.	Corporation	Borough Surveyor, Town Hall, Darlington.
" 3	North Molton, Devon—Erection of Chapel, &c.		G. Bawden, Molland, North Molton.
" 3	Waltham Abbey, Essex—Erection of Ten Cottages	Urban District Council	C. W. Wiggs, Council's Surveyor, Waltham Abbey.
" 4	Bridgend—Isolation Hospital	Parc Gwyllt Asylum	Giles, Gough, & Trollope, 23, Craven-st., Charing Cross, S. W.
" 5	Farnham—Erection of Four Cottage Residences	Mrs. Kelly	J. A. Eggar, 11, West-street, Farnham.
" 5	Glasgow—Erection of Fire Station	Corporation	Office of Public Works, 64, Cochrane-street, Glasgow.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
May 5	Gobowen, near Oswestry—Erection of Parsonage	School Board	Shayler and Madox-Jones, 19, Church-street, Oswestry.
" 5	Tudhoe, Durham—Additions to School	Urban District Council	S. Adams, 56, North Bondgate, Bishop Auckland.
" 6	Gorton, Lancs.—Erection of Chapels, &c., at Cemetery	Urban District Council	Town Hall, Gorton, Lancashire.
" 7	Halifax—Erection of Warehouse	Miss A. Mullen	C. F. L. Horsfall and Son, Lord-street-chambers, Halifax.
" 7	Londonderry—Erection of Hotel	Commissioners of H.M. Works	E. J. Toye, Architect, Strand, Derry.
" 10	Croydon—Inland Revenue Office	London and South-Western Railway Co.	12, Whitehall-place, Westminster, S.W.
" 10	Southampton—Offices, &c., at Docks	Corporation	J. Dixon, Docks Department, Southampton.
" 11	St. Helens.—Engine House, &c.	Electric Traction Company Limited	J. J. Lackland, Town Hall, St. Helens.
" 12	Brierley Hill—Erection of Power Station, &c.	Union Guardians	T. Robinson, Architect, Victoria-chambers, Stourbridge.
" 12	Warwick—Erection of Laundry	County Schools	F. P. Trepass, 8, Jury-street, Warwick.
" 12	Llangefni—Erection of Schools	Corporation	Head Master, Nant Villa, Llangefni.
" 13	Southampton—Offices, &c., at Police Station	Corporation	Borough Engineer, Municipal Offices, Southampton.
" 16	Southampton—Erection of Lodging-house	Corporation	Borough Engineer, Municipal Offices, Southampton.
Aug. 31	Guyaquil—Construction of Custom House	Ecuadorian Government	Commercial Department, Foreign Office, S.W.
Oct. 21	Belem, Para, Brazil—Cattle Pens, Abbatoir, &c.		Brazilian Legation, London.
No date.	Abergavenny—Erection of Eight Cottages		E. A. Johnson, Architect, Abergavenny.
"	Belfast—Four Villas and Fourteen Houses		W. J. Moore, Architect, Whitehall-bldgs., Ann-st., Belfast.
"	Bramley, Leeds—Erection of Eight Houses		F. W. Rhodes, Architect, Upper Wortley.
"	Corbridge-on-Tyne—Additions to Howden Dene	J. H. Straker	J. Oswald, 33, Mosley-street, Newcastle.
"	Derby—Erection of Premises	Midland Drapery Co.	Coulthurst and Booty, 4, Albert-street, Derby.
"	Dunkeld, Scotland—Erection of Mansion House	Duke of Atholl	J. M. Henry, 7, South Charlotte-street, Edinburgh.
"	Haverthwaite—Erection of Parish Hall		Settle and Farmer, Architects, Ulverston.
"	Heywood, Lancs.—Erection of Brewery Tower		C. H. Openshaw, Architect, Derby-chambers, Fleet-st., Bury.
"	London, S.E.—Erection of Five Houses	Mansions Estate Co.	Gilmville, 15, Percy-street, Bedford-square, W.C.
"	London, W.—Erection of Block of Flats	School Board	Metcalf and Greig, 11, Sergeants'-in-a, Temple, E.C.
"	Stevington, Bedfordshire—Erection of Schoolroom		Usher and Anthony, 9, St. Paul's-square, Bedford.
"	Sherburn—Erection of Five Houses		P. Robinson, 72, Albion-street, Leeds.
"	Bowdon, Manchester—Congregational School Chapel		W. Waddington and Son, Mansfield-chambers, Manchester.
"	Clonard, Belfast—Monastery	Rev. P. Griffith	A. Ferguson, Architect, Royal Avenue, Belfast.
"	Pontefract—Lecture Hall, &c.		Clark and Moscrop, Architects, Feethams, Darlington.
"	Swansea—Eisteddfod Buildings		Wilson and Moxham, 15, Castle-street, Swansea.
"	Bournemouth—Nave and Aisles of Church	St. Ambrose Church	Boreham and Morton, Sunderland.
ENGINEERING—			
April 30	Sheffield—Steel Bridge	Corporation	C. F. Wike, Town Hall, Sheffield.
" 30	Ball's Bridge, Co. Dublin—Widening Bridge	Pembroke Township Commissioners	The Secretary, Town Hall, Ball's Bridge, Co. Dublin.
" 30	Withington, Lancs.—Hydraulic Plant	District Council	A. H. Mountain, Surveyor, Town Hall, Withington.
" 30	Loch Efort, North Uist—Construction of Pier	Sir A. C. Orde	Blyth and Westland, 135, George-street, Edinburgh.
" 30	Winchester—Lighting Streets	Town Council	Surveyor, Guildhall, Winchester.
" 30	Hayfield—Five Flushing Tanks	Rural District Council	H. Bancroft, 88, Mosley-street, Manchester.
May 2	Belfast—Supply, &c., of Crane	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
" 2	Upholland, near Wigan—Water Mains, &c.	District Council	Heaton, Ralph, and Heaton, King-street, Wigan.
" 2	Glasgow—Construction of Railways	Caledonian Railway Company	G. Graham, Buchanan-street Station, Glasgow.
" 4	Leicester—Construction of Detritus Tanks	Highway and Sewerage Committee	E. G. Mawbey, Borough Surveyor, Town Hall, Leicester.
" 4	Barrow-in-Furness—Washing Machinery	Guardians	J. Y. McIntosh, Cornwallis-street, Barrow.
" 5	Belfast—Waterworks	City and District Water Commissioners	W. A. Stephens, 41, Donegal-place, Belfast.
" 6	Hastings—Laying-out Cemetery	Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
" 14	Bollington, Cheshire—Reservoir, &c.	Urban District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
" 16	Birmingham—Construction of Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 17	Bethnal Green—Supply of Plant and Electric Light	Guardians	Giles, Gough, and Trollope, 28, Craven-street, Strand, W.C.
" 27	Sophia, Bulgaria—Construction of Port		Ministry of Public Works at Sophia.
July 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
No date.	Portobello—Pipe-laying		Ferguson and Co., Niddrie, Portobello.
"	Cracoe, Yorks.—Water Supply Works, &c.		W. W. Maude, The Fleets, Rylstone, Craven.
IRON AND STEEL—			
April 30	Workshop—Wrought-iron Tank	Water Company	H. A. Collingwood, 5, Eastgate, Worksop.
May 2	London, S.W.—Supply of Storages	London County Council	Clerk of the Council, County Hall, Spring-gardens, S.W.
" 2	Handsworth, Staffs.—Supply of Fencing	Urban District Council	E. Kenworthy, Surveyor, Council House, Handsworth.
" 14	Bollington, Cheshire—Supply of Cast-iron Pipes	Urban District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
No date.	Siam—Railway Wagons, Rails, &c. (Two Contracts)	Royal Railway Department	A. S. Moss-Blundell, 28, Victoria-street, Westminster.
PAINTING AND PLUMBING—			
May 2	Keighley—Painting Lodge, Chapels, &c.	Burial Board	Registrar's Office, Cemetery, Keighley.
" 2	Stockport—Varnishing Iron Railings	Rural District Council	H. H. Turner, Union Offices, Shaw Heath, Stockport.
No date.	Burnley—Painting, &c., Hotel	Massey's Brewery, Ltd.	C. Parsons, 9, Grimshaw-street, Burnley.
"	Eston Mines, Middlesbrough—Painting Barracks	Salvation Army	Offices, 19, Jubilee-road, Eston Mines.
"	Selby—Re-gilding Clock	Urban District Council	B. McG. Gray, Town Surveyor, Town Hall, Selby.
"	Cardiff—Supply of Paints and Oils	Powell Duffryn Steam Coal Co. Ltd.	Company's Office, Cardiff.
ROADS—			
April 30	Batley—Street Works	Town Council	O. J. Kirby, Borough Engineer, Market-place, Batley.
" 30	Maldon, Essex—Supply of Granite, Flints, &c.	Rural District Council	M. C. Warne, District Surveyor, Southminster.
" 30	Berwick-upon-Tweed—Road Works	Sanitary Authority	R. Dickinson, Borough Surveyor, Berwick-upon-Tweed.
May 2	East Dereham, Norfolk—Supply of Granite	Urban District Council	H. C. Hinson, Surveyor, Theatre-street, E. Dereham.
" 3	Aboyne, Scotland—Quarrying and Breaking Stones		J. Milne, District Road Surveyor, Aboyne.
" 3	Hampton, Middlesex—Making-up, &c., Streets	Urban District Council	J. Kemp, Surveyor, Park House, Hampton, Middlesex.
" 3	Sefton, Liverpool—Road Repair	Rural District Council	Surveyor to Council, Brougham-terrace, Liverpool.
" 3	London, S.E.—Road Works	Lewisham Board of Works	Surveyor's Office, Catford, S.E.
" 4	King's Lynn—Supply of Road Materials	Corporation	E. J. Silcock, Borough Surveyor, King's Lynn.
" 4	Westminster—Asphalte Paving	Vestry	G. E. W. Wheeler, Town Hall, Caxton-street, S.W.
" 6	Wanstead, Essex—Making-up Road	Urban District Council	Surveyor, District Council Offices, Wanstead, N.E.
" 6	Gorton, Lancs.—Roadmaking and Drainage	Urban District Council	Town Hall, Gorton.
" 7	Ashby-de-la-Zouch—Supply of Materials	Urban District Council	G. H. Lilley, Surveyor, Council Offices, Ashby-de-la-Zouch.
" 9	Abergavenny—Supply of Limestone, &c.	Rural District Council	J. Gill, Surveyor, Hereford-road, Abergavenny.
" 11	Kings-ton-Thames—Road Works	Corporation	Surveyor, Clattern House, Kingston.
No date.	Manchester—Supply of Grit Setts and Kerb	Highways Committee	City Clerk, Highways Office, Town Hall, Manchester.
SANITARY—			
April 30	Barnstaple—Construction of Pipe Sewer	Town Council	J. Bosson, Town Clerk, Municipal-buildings, Barnstaple.
May 2	Stalybridge—Construction of Brick Sewer	Urban District Council	J. N. White, Town Hall, Stalybridge.
No date.	Alnwick—Sewerage Works, &c.	Urban District Council	Surveyor, Council Offices, Alnwick.
TIMBER—			
April 30	Croydon—Supply of Deal Ends and Battens	Union Guardians	H. List, Union Offices, Mayday-road, Thornton Heath.
May 3	Dundalk—Supply of Sleeper Blocks	Great Northern Railway Co. (Ireland)	T. Morrison, Sec., Amiens-street Terminus, Dublin.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
May 7	Douglas, Isle of Man—Laying-out Estate	£25, £10	Palace and Derby Castle, Limited.
" 25	Tipton, Staffs.—Laying-out Park	£25, £10	Urban District Council.
" 28	Trowbridge—Technical School	£10, £30, £20	The Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Maj. F. L. Anderson, R.E., South Camp, Aldershot.
June 7	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 24	East Ham—Offices, Fire Station, and Public Baths	£105, £52 10s.	Urban District Council.
July 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.

THE ECONOMY AND MORALITY OF COMPETITIONS.*

By B. CRESWELL.

THE idea of treating this subject from the basis of economics originated in some articles which appeared two years ago in A. A. Notes. It was thought that if actual statistics could be collected the whole system of competitions as now conducted could be proved to be a commercial absurdity. It was only after the figures which are here presented had been collected that the writer discovered that twenty years before Mr. Thomas Porter, F.R.I.B.A., had worked precisely on these lines, and had, by carefully constructed tables, demonstrated the folly of the system from an economic standpoint. A review of the various public protests against the system during the century constituted in papers read, debates, resolutions passed, and reports of special committees deputed to investigate the matter. The direct result of Mr. Porter's paper was the circulation, by Mr. Cole A. Adams, of a memorial signed by 1300 architects, who bound themselves to enter in competition only when a "professional adjudicator of established reputation" was employed. The fact of the activity promoted by Mr. Porter's paper and Mr. Adam's enterprise being allowed to evaporate without any positive step being taken to ameliorate

THE EVILS OF THE SYSTEM,

left the matter in a more hopeless case than theretofore. Absolute statistics are almost impossible to acquire, as Scotland and Ireland in chief limit their competitions to their respective countries, and in England probably more than half the total competitions are advertised locally only. In considering the question of public competitions it is desirable to consider it generally, and not in particular, or as affecting the individual. To this end the figures here presented have been concentrated upon a system of averages. An examination of the tabulated results of an investigation of the files of the Builder over a period of two years (1894 and 1895), and a comparison with the authenticated figures of previous investigators, shows an average competition to be for the design of a building costing some £18,000; first premium, £56, with £52 divided in smaller prizes, and there are thirty-six competitors. The cost of making a set of competition drawings for a design as above may be stated at £50, principals' time not included. The Special Committee of 1872 found this amount varied from £2 to £800. These figures as they stand demonstrate and establish the rottenness of the system from a commercial or economic point of view. As a question of policy the system is so disastrous that, even if it brought handsome monetary benefits to the Profession, it would still be advisable to forego such benefits, and reorganise the system. Competitions have crowded the Profession with amateurs, dilettantes, and persons lacking culture or education. They have been disastrous to the status of the bona fide practitioner, and have brought the Profession into contempt and disrepute of the public. They have tended to overrate the Act, and to destroy the claims of Architecture upon the attention of the nation. They have secured that a large and important division of the

NATIONAL ARCHITECTURE

shall interpret the sentiments, ideals, and aspirations of the most ignorant and intellectually insignificant class in this country—a class educated in positive ignorance and cultured in execrable artistic taste and proclivities. In 1887 the architects of Belgium were agitating for competitions "on a properly regulated system," the usage at that time in Belgium altogether precluding competitions in architectural design. A consideration and criticism of the recommendations advanced before the Central Society of Architects, Brussels. Sir Edmund Beckett, in 1881, sup-

ported our system on the ground that competition was common to all professions. A refutation of this suggestion. Conclusion, that the policy of the system (apart from its false economy) is highly prejudicial and quite irrational. A consideration of wherein the error has arisen, and upon whose shoulders the responsibility for it chiefly lies. It is the common usage to exclaim against promoters of a competition when there has been inequitable treatment of the competitors. This is unreasonable, because competitions are on a business and commercial basis. There is no suggestion of philanthropic motives or of mutual concessions for mutual benefit. In any other transactions involving such large outlay and such weighty consequences, the architect protects himself according to the commercial usage in the case, and should make no exception in the case of a competition. The system is due to no conspiracy of the promoters, but to the weakness, folly, and lack of public spirit, and *esprit de corps* in the competitors. The story of "Durham" to illustrate the feeble, poor-spirited methods of the Profession. Culpability of assessors, who approve faulty and ambiguous "conditions," and turn their backs as soon as they have delivered their report; and who consent to act in a technical question in which they have no experience or knowledge. The

CAUSE OF THE DIMENSIONS,

to which the irregularities of the promoters have developed, is due to instincts of personal ambition and worldly success in the competitors over-riding those of professional pride, and artistic enthusiasm. An exposition of the fallacy of regarding competitions from the point of view of the individual—the winner. There are thirty-six competitors in an average competition, so that each should expect to win but one in every thirty-six competed for. Each competitor who wins more than one in thirty-six implies another who wins proportionately less. Explanation of tabulated results of an investigation of some forty "conditions of competition" showing that—An assessor is most usually appointed. The premiums, with few exceptions, merge in the commission. The promoters, generally speaking, exempt themselves from accepting the "first" or the "first or any award," though the first premium is more often commissioned than not. There are hardly any instances at all of the assessor's award being acknowledged to be absolute. It is common for the competitors to pay each from 10s. to £5 before they can know the conditions upon which they may compete. A consideration of the moral influence of competitions. The system is opposed to the growth of an art, and to the artistic integrity of architects. It arouses envies and jealousies in precisely those quarters where the friendliness and sympathy are of greatest value to the man and his art. It replaces the artist's desire for power, by a restless desire for brilliant and meretricious qualities. It inculcates in the student a passion for worldly success and popular applause, and by these means it enervates the art through the artist, and destroys that brotherhood and freemasonry which is almost a necessity for the development of a great art or a true artist. It procures the commission of a certain quantity of unprofitable labour in each year to the value of which the nation is poorer and weaker. The remedy lies in a mutual recognition and spirit of combination; any restrictive code, on the lines of trades union regulations, is undesirable.

Three stained glass windows have been placed in St. Catherine's Parish Church, Pontypridd.

The foundation-stone has been laid of a new chancel which is being added to Christ Church, Crewe.

The recumbent statue for the tomb of the Duke of Clarence and Avondale is, it is understood, about to be placed upon the lid of the sarcophagus in the Albert Chapel at Windsor Castle.

In connection with the proposed restoration of Norwich Cathedral, Mr. Samuel Hoare, M.P., and Mrs. Hoare have expressed their readiness to undertake the entire underflaking of the nave at their own cost.

UNDER-PINNING A CHURCH.

REMARKABLE FEAT IN THE CITY.

THE Church of St. Mary Woolnoth is undergoing a unique experience. It is being under-pinned, in order that beneath it may be constructed a railway booking-office and a station in connection with the City and South London Railway. It may safely be said that it is the first time that a church has undergone so remarkable an operation, and so far the stability of the fabric has not suffered in the least. Tall stories having a transatlantic origin are occasionally told of hotels being bodily moved from one locality to another, but there is really nothing very formidable about that exploit, seeing that hotels of a movable kind do not possess massive foundations, like the Church of St. Mary Woolnoth. The phase through which the church is passing marks

AN EPOCH IN ECCLESIASTICAL HISTORY;

indeed, the pious builders of the church would, no doubt, stand aghast at what they would distinctly believe to be a flagrant act of sacrilege. A railway booking-office under a church, and then beneath the booking-office, deep down in the bowels of the City, another station with a fully-equipped and quite up-to-date railway! It seems very incongruous, and yet when the scheme is an accomplished fact there will be little connection between the church and railway station. The appearance of the interior of the Church of St. Mary Woolnoth, says the City Press, is not easy to describe. What

ARCHITECTURAL CHARACTERISTICS AND MURAL DECORATIONS

it possesses are lost to view behind a screen of matchboarding. The place where the floor originally was is a yawning chasm dimly lighted by electric globes, which bring into relief the shapes of monstrous iron girders, which run the entire length of the building. Anything more unlike the interior of a church could not be imagined until the eye wanders upward and sees the groups of pillars which support the roof. Strange to say, the outside walls of the church have a kind of separate existence from the central portion of the edifice, a fact which has not rendered the work of under-pinning any easier. The yawning cavern is, of course, the centre of the engineering operations. Broadly and generally speaking, the *modus operandi* is as follows: There are four groups of three columns, which have to bear a weight of about a hundred tons each. The main girders are in the first instance fixed alongside the columns, and then smaller girders, technically known as "needles," are threaded through the bases of the columns, and rest upon the main girders. In order to make the work thoroughly secure steel wedges are inserted between the "needles" and the top of the larger girders, and these take up the deflection of the latter when the weight descends upon them. The work of under-pinning the pillars of the church is almost complete, but it has been a labour which has demanded much patience. The engineers are Sir Benjamin Baker, Mr. David Hay, and Mr. Basil Mott. The contractors are Messrs. Mowlem and Co.

THE FOUNDATIONS OF THE CHURCH

contain nothing remarkable, but the imposing pillars of the church are not all they seem to be; indeed, they are frauds from a builder's point of view. From their external appearance it would be said that they were stone, but on an investigation they proved to be, if not whitened sepulchres, at least very bad pillars, for their "hearts" are composed of nothing but old brickwork. In another portion of the church the workmen saw what they believed at first was an arched stone roof, but it turned out to be a ceiling, composed of laths and plaster of the flimsiest kind. The booking-office will be about 20ft. beneath the street, access being given to it by staircases in front of the church and in King William Street. A large, oblong, segmental shaft will be sunk to the level of the line. It will contain five passenger lifts, and it is by these means that the passengers will descend. The

* Résumé of a paper read before the Architectural Association on Friday night.

shaft will be 73ft. in length by 24ft. in width, and will be constructed in an entirely new form. A shaft over 100ft deep has already been sunk on the King William Street side of the church, and the work has been rendered all the more difficult in consequence of the confined area in which it is being carried out.

NO FEATURES OF ARCHÆOLOGICAL INTEREST

have been discovered in the course of excavation. An old well was found under the north wall of the church, but it contained nothing save 8ft. of water. It is said that in the construction of the Monument Station a well was discovered which was practically bottomless—at least that is the story which obtained credence among the workmen who made the discovery. It appears to be somewhat of a stretch of imagination just now to realise that the disembowelled church of St. Mary Woolnoth will ever regain its pristine sanctity, but, nevertheless, it will be so. As soon as the surface station is made, and the interior of the edifice returned to its former conditions, there will be nothing to indicate the fact that it had ever undergone the process of under-pinning; on the contrary, the tolling bell will again call the faithful to its shrine, and if beneath the foundations of the old church there is a book-ing-office, with a railway station below that, certain it is that the worshippers will never realise it, for the close, adhesive London clay will give no echo of the world of activity existent in its very bed. The silence of the tomb itself could not be more complete than the impenetrable gloom and solitude which reign beneath the adamant streets of the City. The Shakesperian legend, "To what base uses may we not return," should never be inscribed over the portals of St. Mary Woolnoth, which will rise Phoenix-like from its present state of desolation. At any rate, it cannot be said after Pope:—

"Destruction hangs on yon devoted wall,
And nodding Ilion waits th' impending fall."

A DEVONSHIRE CHURCH RESTORED.

BBROADHEMPSTON Church, which has been undergoing restoration, is one of considerable interest amongst Devonshire churches. It consists of a nave, chancel, north and south aisles, with chancel aisles, a western tower, and south porch. From the general internal and external appearance of the church it is evident that it was entirely remodelled and enlarged in the fifteenth century, and not finished until late in that period. But in the thick chancel walls and lower parts of the tower traces of thirteenth century walling are to be found. Some little work of restoration to this portion of the church was carried out under the direction of the late Mr. Pearson, but he was not able to superintend the work himself. When the main work of restoration was commenced a year and a half ago the church was in a very dilapidated condition, and the rain poured in through the roofs in several places. The old nave roof had been supplanted by a deal one, placed there at the end of last century, but fortunately both the aisle roofs when opened out were found to be the original ones, though in a very bad condition, so much so that it was found impossible to reuse any of the old rafters; but nearly all the old ribs have been reused. Many of the principal ribs, which are exceedingly well carved, retain their old colouring, which has been carefully preserved. The finely-cut fifteenth century windows were in such good preservation that they have been repaired without taking them down; they are certainly the finest in the neighbourhood. The glass was in such a bad state that it had to be discarded. During the restoration some mural inscriptions were found upon the aisle walls, surrounded by scroll work; they were evidently executed about 100 years ago. The exterior walls have not been interfered with more than was absolutely necessary, so that natural colouring, which is so charming a feature in many of our western churches, has been preserved. The total cost of the work is about £1000. The architect for the restoration is Mr. Edmund Sedding, of Plymouth.

KEYSTONES.

PLANS for the erection of a new hotel at Chesterfield have been approved.

A NURSING INSTITUTE has been erected at Wednesbury. It has been designed by the hon. architect, Mr. Joynson.

A SCHOOL-CHAPEL is being built at Meersbrook Bank, Sheffield. The plans are by Messrs. Hemsoll and Paterson, of 18, Norfolk Row.

THE Passmore Edwards' Public Library, Pitfield Street, Hoxton, has been opened. The cost of the building, including the site, has been £20,000.

A NEW stone font has been presented to St. Etheldreda's Church in Fulham Palace Road; also a painted glass window to illustrate the life of St. Etheldreda.

THE contract for building Mr. Edward Compton's new theatre at Dover has been secured by a local firm. It is to be completed early in December.

HEXHAM's beautiful old abbey is about to be provided with a reredos. To this venerable abbey belongs the prestige of having been the first edifice in England to boast of windows.

THE Marquis of Bute has just replaced, at a cost approaching £1000, the old wooden rood-screen at St. Peter's Church, Cardiff, with a structure of Caen and Pennant stone.

THE Edinburgh Methodist Mission has purchased a block of property in Earl Grey Street, consisting of St. John's Episcopal schools and two houses, and on this site it is intended to build a hall to seat 1500, the total expenditure expected being about £30,000.

IN connection with the proposed new bridge over the Tay at Perth, the tenders of Messrs. Fraser and Morton for the mason work, and Messrs. Arrol and Co. for the steel and iron work, have been accepted. The estimates amounted in all to £19,903 18s. 6d.

ST. MARY'S CHURCH, Evedon, near Sleaford, one of the smallest parish churches in England, has been practically remodelled, the interior having been rebuilt, at a cost of about £500. The work has been carried out by Mr. F. Pattinson, of Ruskington.

A COMMENCEMENT has been made with the work of erecting a new wing to Highgate School, at a cost of about £12,000. Its extension necessitates the removal of the picturesque old school lodge adjoining the North Road, Highgate, and some shop property of great age.

THE Kesteven Asylum Committee have opened tenders for the foundations of the new asylum, which is to be built at Wilsford, near Sleaford. The tender of Messrs. Wadsley and Company, of Horbling, has been conditionally accepted, the amount of the contract being about £8000.

AFTER being closed for twelve months for extensive alterations, the Parish Church at Port Glasgow has been re-opened. The building has undergone a complete renovation, having been refloored and re-seated, while an organ-chamber has been erected at the pulpit end of the church. A striking improvement is the introduction of cathedral glass windows, the pattern being the same as that adopted in St. George's Parish Church, Edinburgh.

ONE more block of the County Council's model dwellings on the Boundary Street area in Shoreditch has just been opened. Two other very large blocks are in hand, one of them nearly approaching its full height, and the other just getting in its foundations. There will still remain a considerable piece of the land cleared of its slums, but with the two blocks now in course of erection the new housing scheme may be considered to be approaching completion.

THE building known as the Wesleyan Centenary Hall and Mission House, which fronts the point at which Threadneedle Street enters Bishopsgate Street, is likely, before long, to come down. The Wesleyan authorities will shortly erect on this central site a new Centenary Hall and Mission House, letting off the ground floor and basement for banking and other purposes, retaining the middle sections. The estimated outlay on demolition and reconstruction will not fall short of £70,000.

FLEET STREET AS IT IS: AND AS IT WILL BE.

WHY should Fleet Street wait? The question has been asked many times by those who are anxious to see brought to successful completion the scheme of improvements long promised and warmly debated in connection with that historic artery. But Rome was not built in a day, and it takes, apparently, several years to widen, improve, and generally smarten up one of the busiest—and, be it confessed, one of the noisiest—thoroughfares in London. People who talk about putting Fleet Street into proper condition, and making it

WORTHY ITS GREAT NAME

and commercial importance, and who lament the protracted nature of the operations in process of gradual development, seem to forget that some thirty-three years, or thereabouts, have flown over our heads since the movement for widening Ludgate Hill was first set on foot. And how long is it, after all, since the Corporation were enabled to put the finishing touches to that much-needed project of amelioration? Negotiations respecting the acquisition of further property in Fleet Street are momentarily suspended, and meanwhile the attention of those who show themselves to be impatient of any delay is drawn to the cheering circumstance that yet another house has been placed further back from the roadway within recent date. This is No. 89, on the eastern side of St. Bride's Avenue, and the process of reconstruction has given to that portion of the famous highway an added width of just over 20ft. It is understood that the next building at which the task of widening is to be resumed will be No. 90, adjoining the house already mentioned, and in the occupation of a well-known firm of publishers. Some months have yet to elapse, however, ere the lease of these premises falls in, and even when the work at this particular point has been carried out, frequenters of Fleet Street will again have to possess their souls in patience whilst that portion is widened—by some 17ft. 6in.—which lies between St. Bride's Avenue and Salisbury Court. A melodrama now running in the metropolis boasts among its scenic attractions

A VIVID REPRESENTATION OF FLEET STREET as it is—with its extraordinary bustle, animation, and activity, and the daily illustration it affords of that struggle for existence which has become so keen with the growth of the nineteenth century. It would be interesting were some fanciful picture to be drawn of Fleet Street as it may be in a distant future, when the old landmarks that tell of an historic past have been swept away, when ancient and dilapidated buildings have been abolished, and when in their place shall have been reared structures of an imposing and dignified aspect. Every year brings with it fresh indications that, sooner or later, the famous old thoroughfare is to be altered out of all recognition and improved out of all knowledge. At the present moment the finishing touches are being put to the brand new and commodious premises wherein the business of the London and Westminster Bank—only a step from Fleet Street—is carried on. The work of reconstruction was commenced some two years ago, and now the institution presents quite an attractive frontage of Portland stone and solid granite blocks. The building adjoining it—now Lloyds' Bank—has undergone many changes, having failed as a large and commodious restaurant. Moreover, in connection with the more pleasing of the architectural features of "That crippling street, Distinguished by the name of Fleet," its very first house is a handsome building in which the business of the famous firm of Child's is transacted. Barclay's banking house has just been closed, having been transferred, prior to rebuilding operations, to the adjacent Carey Street. Every appearance of old age have these premises, which are now to be demolished previous to the erection of a far larger and infinitely more imposing edifice, the designs of which are being prepared by Sir Arthur Blomfield.

Professional Items.

BRADFORD.—New girls' and infant schools in connection with St. Mary's Roman Catholic church, Bradford, have been erected on the site of the former church at Stott Hill. The schools are in two storeys and basements. Messrs. Wray and Co., contractors, have executed the main portion of the building, and the other contractors are as follows:—Mr. W. H. C. Joiner; Mr. M. Bland, plasterer; Messrs. J. and Nelson, slaters; Messrs. Weardon and plumbers; and Messrs. Duckett and Co., painters, lavatories. Mr. Edward Simpson is architect. The total cost is about £6000, and the schools will accommodate some 900 scholars.

ROMFORD.—Alterations have been carried out at St. Mary's Church. The chief work of the contractors has been a widening of the nave arch, and general decoration of the nave and church. This work has cost upwards of £1500, and has been carried out under the direction of Messrs. Naylor and Sale, and Mr. Hemmings, of London, has carried out the painting, &c. The walls of the main part of the church have been beautified by painting, and there are eight life-size figures representing saints. In the chancel three stained-glass windows have been added to the church. Messrs. J. and G. Walker, of Warrington, were the contractors.

BERKELEY.—A new board school has just been erected at Derker. The site of the schools is somewhat triangular in shape, and contains 8 square yards. The larger or mixed school is planned on the central hall system, having separate entrances for boys and girls with direct communication with the hat and cloak rooms. These rooms have a special feature, that of drying and fumigating the clothing of the scholars. The infants' school is placed on the lower portion of the site, being a separate and distinct building. It accommodates on the ground floor 380 scholars. The teacher's cottage occupies an angle of the site and gives full control over the various buildings. The exterior has been designed to be of solidity and proportion to its parts, no ornamentation being attempted. This work has been carried out by Messrs. James Stott (Co.), Vernon Works, Oldham. The foundations up to the ground floor line were built by Whitworth Whittaker; the super-structure by Messrs. Ogden Bros.; the masonry by Messrs. S. and J. Whitehead; the joiners' work by Mr. William Lees; the plumbing, glazing, fitting, painting, and decorating by Messrs. Chadwick and Sons; the plastering by Mr. J. J. Kelly; the slating by Mr. Joseph Jackson; the wrought ironwork by Messrs. J. J. and Co.; the lavatory fittings by Messrs. J. J. and Co.; the tiling by Messrs. C. W. Williams and Co.; the wood blocking by Mr. L. Lowe; locks by Messrs. Joseph Kaye and Co., Leeds; and the furniture by the Bennett Furnishing Co., Glasgow. The whole has been erected and superintended by Mr. Thomas J. J. and Co., Queen Street, Oldham, with whom has been associated Mr. James Hanson, clerk of works to the Board. The total cost of the buildings is about £20,000.

DEWSBURY.—An important addition to the town Church is about to be made, tenders having been invited for the erection of a chapel on the south side, opening out from the aisle. The style of Architecture corresponds to that of the main building. Messrs. J. J. and Fox, of Dewsbury, are the architects.

EDINBURGH.—Plans have been approved for a new fire station, situated at the Cattle Market, Lauriston, the cost of which will be £1000. The frontage to Lady Lawson Street and Lauriston extends to 270ft. The design is of a simple classic order, with round windows on the lower ground floor. The windows of the two upper floors are plain, with architraves finished with medallioned pilasters. The fire station proper is next

Lauriston Street. The engine house has four arched openings high enough and wide enough to permit of horses and engines attached being driven out at full gallop. There is stabling accommodation behind each fire engine. Provision has been made for dealing with the construction of fire apparatus on the premises, and workshop accommodation will be provided for fitters, blacksmiths, joiners, painters, and hose repairers. The whole of the ground floor is devoted to the requirements of the department. The first floor comprises the firemaster's residence, superintendent's residence, mess room and dormitory for the single men, married men's quarters, &c. The second floor is entirely set apart as married men's quarters. There are more quarters on the third floor, and a laundry quite apart from the dwellings. In the rear of the building is a hose tower finished with a wooden fleche about 100ft. in height, which will be used for observation purposes, and for hoisting hose after use. Beyond the engine room is an office for clerks and the firemaster's private room. A gymnasium adjoins the recreation room. Behind the main building is a spacious courtyard for fire drilling purposes, &c., and to the rear again is a secondary stable and miscellaneous out premises for storage and other purposes. Brass poles are supplied at suitable places for easy and convenient access for the men sliding down to the ground in a few seconds. The architect is Mr. Morham, the city superintendent of works.

GLASGOW.—The last sessional visit of Mr. D. Bennet Dobson's High School students took place on Saturday. The Art Galleries, Kelvin Grove, were inspected. The buildings, designed in the Renaissance style, are now well advanced, the second story being almost completed. The exterior is of red Lochaber stone, and the interior of white Giffnock stone. The cost of the building will be close on £180,000. Messrs. Simpson and Allen are the architects. Mr. Monteith, clerk of works, conducted the students.

The students of the Glasgow and West of Scotland Technical College Architecture and Building Construction Classes have, during this session, visited the following buildings and works:—Ruchill Hospital and the People's Palace, Mr. A. B. McDonald, architect; the Western Infirmary Operating Theatres, &c., Mr. John J. Burnet, architect; the Clyde Ironworks, Tollcross, new offices, 41, Bothwell Street, Messrs. James Salmon and Son, architects; Messrs. James Howden and Co.'s new works in Scotland Street, Mr. Nisbet Sinclair, architect; Pollokshaws Town Hall, Dr. R. Rowand Anderson, architect; Norwich Union Insurance Offices, St. Vincent Street, Mr. John Hutchison, architect.

Rapid progress is being made with the erection of Glasgow's new Art Galleries, which, it is estimated, will cost close upon a quarter of a million sterling. The work was commenced by the Association for the Promotion of Art and Music, but lack of funds compelled that body to hand over the undertaking to the Corporation. The Association had borne the expense of the excavations, foundations, &c., but the Corporation started the building proper in August, 1896. Since then everything has proceeded without a hitch. There are close upon 300 men and apprentices engaged, and it is estimated that the various turning, planing, sawing, and moulding machines save the labour of fully 150 masons. The buildings will cover an area of about two acres. A glance at the exterior gives only a slight idea of the substantial masonry inside, where already there have been "cast" ordinary and flat arches moulded on all exposed faces, to the number of over 200. The value of the interior stone work alone will amount to about £35,000. The main feature of the pile is the central hall, bisecting the building transversely, and leading to the east and west courts, which are roofed up about the height of two stories. Here we have two spacious courts suitable for museum exhibits and presumably statuary. These courts are surrounded by promenades which lead into the picture galleries proper and these galleries and promenades are again repeated on the first floor level. Of the chief

features of the exterior, mention must be made of the four corner pavilions, which have finely-proportioned and pleasingly-detailed circular windows. While the buildings are very extensive and elaborate in detail, the main plan is exceedingly simple. Roughly speaking, the east and west wings, composed of the courts, galleries, etc., described above, are bisected by a large central hall, the roof of which is some 100ft. from the ground floor. The most striking feature to the north, where is the principal elevation, is the central portion, flanked by two towers, each about 170ft. from the ground floor. The construction of these main towers will be unusually strong, the four corners of each tower being carried on four groups of upright iron stanchions, tied together with malleable iron tie-rods—the whole being strongly cased with cubic masonry of white stone. The external walls are built of red sandstone, taken from Lochaberbriggs Quarry, in the south country. White Giffnock stone is used for the interior.

HAMPSTEAD, N.W.—A new administrative block has been added to the public baths in Finchley Road. The old front of the baths was pulled down in consequence of the carrying out of the Great Central Railway works, and the Company paid the Vestry £8300, and gave them a larger area of ground to rebuild upon by way of compensation. The new block is built in the English Renaissance style of an early type, and has cost nearly £9000. The building is faced with red brick, with dressings of Portland stone, and the plinth is of grey granite from Aberdeen. Messrs. Spalding and Cross were the architects, and Mr. Kingerlee the builder.

HUDDERSFIELD.—The new Wesleyan schools which have been erected at Mount Pleasant, Lockwood, Huddersfield, have been opened. The schools contain three heights of floors. The principal entrances to the schools are from Pleasant Street, and face the Mount Pleasant Board Schools. There are separate entrances for boys and girls into commodious lobbies, from each of which there is a flight of stone steps leading to the gallery, and an entrance to the assembly room. There is an open timber roof, with moulded posts, filled in between the arches, which have cusped spandrels. At the back is a rostrum, having two tiers of seats at the back for a school choir, and a recess for an organ. The style of Architecture adopted is perpendicular Gothic. The front elevation has a central gable, flanked on each side with low slated towers. Many of the windows have cusped tracery heads, and the main entrances have moulded jambs and flat pointed arches with panelled spandrels and battlemented cornices over. The front gangway which unites the Gothic school with the Classic chapel is half-timbered with plaster panels. The front elevation is built with pitch-faced wallstones, and the sides and back with hammer-dressed wallstones. The whole of the work has been carried out from plans prepared by Mr. B. Stocks, by the following contractors:—Messrs. T. Bottomley and Son, masons, Lindley; Messrs. H. Hollingworth and Son, joiners, Moldgreen; Messrs. D. Taylor and Sons, plumbers, Lockwood; Messrs. T. Longbottom and Sons, slaters and plasterers, Lockwood; Mr. Richard Heaton, painter, Paddock; Mr. Fredk. Milan, heating and whitesmith's work, Lockwood. The total cost is expected to be about £4000.

MARKINCH.—A new United Presbyterian church has been built at Markinch, Fife. Built on an excellent site on the Balbirnie estate, to designs by Mr. Hippolyte J. Blanc, Edinburgh, the church is in the Early English style of Architecture, and consists of a nave with one transept and one aisle.

NORWICH.—With reference to the proposed arcade on the site of the old Royal Hotel premises, the work of demolishing a portion of the old buildings has been commenced by Messrs. Youngs and Son. The architects engaged are Messrs. G. J. and F. W. Skipper, of London Street. According to the plans which have been prepared, the present main

avenue of the old Royal from the Walk to Castle Street will be utilised. The entrance at the Market Place will be by way of a double arch, with shops—the fronts of which have been planned in circular form. At the Castle Street end the arcade will finish with a moulded gablet of terra cotta, surmounted by a finial of the same material. The shops at the entrance will be surmounted by copper domed roofs, returned against the gable. The roof will be of wood and glass, of a tasteful design, and at the intersection of the two avenues there will be a dome-shaped lantern. The arches, string courses, piers, and all the main constructive details of the interior will be faced with Doulton's Carrara ware. The string cornice above the shop fronts will be in deeper colour, raised, and panelled. The shops will be of uniform description, and the existing walls have been adapted to the general design.

PORTRANE.—The new asylum buildings at Portrane, the contract for which involves the expenditure of nearly £170,000, is the largest building contract which has ever been entered into in Ireland. The contractors are Messrs. Collen Brothers, Limited, of Dublin and Portadown. The first portion proceeded with is the building intended for the accommodation of chronic female patients. This building is three storeys high, and is a large and handsome structure, the materials used being, as throughout the entire buildings, mainly brick, concrete, and steel, one of the objects in view being that all the buildings shall, as far as possible, be fireproof. This building, which is now nearly completed, is constructed to accommodate about 300 patients. The only other three-storey blocks will be those for the attendants—one for the male and the other for the female attendants. Separate buildings will be provided in each of the two sections of the building—the one for the male, and the other for the female—for the separate treatment of acute and semi-acute cases, as distinguished from chronic cases; and there will be likewise a male infirmary and a female infirmary. These will all be on the southern side, and, like the larger buildings already referred to, will have a southern aspect; while the auxiliary buildings, such as the laundry, the engine and boiler house, the "administration" block, two places of worship, Protestant and Roman Catholic, the doctor's residence, and the workshops will face the north, on which side the public approach to the institution will be provided. In the centre, at the rear of the buildings just mentioned, the foundations of some of which have been laid, the kitchen (which will be provided with all the newest appliances), the butcher's department, the bakery, and the large dining hall will be erected. The last mentioned will be a spacious building, 139ft. in length by 66ft. in width, and will contain a gallery. It will also be provided with a stage, as it is intended to use it for the purpose of concerts and balls. The total accommodation provided in the permanent buildings will be for about 1200 persons. Mr. Richard Collen, a principal member of the firm of contractors, resides at the works, and has the assistance of Mr. Norman Leask, who, under Mr. Collen, has charge of the works. The buildings are from designs by Mr. G. C. Ashlin, assisted by Mr. A. J. McCloughlin.

ST. ANNE'S.—A Building and Finance Committee have been formed to undertake the erection of the proposed St. Thomas' Church in connection with the Parish Church of St. Anne's. The committee have been instructed by the general committee to confer with Messrs. Austin and Paley, or other architects, to get plans and estimates, the total cost of the church not to exceed £7000. The edifice will stand on the Clifton Drive, on the borders of St. Annes and Fairhaven.

SHEFFIELD.—The transformation of Chapel Walk is an interesting feature in the movement for street improvement in Sheffield. In place of the dwarfed and old-world shops and houses which a few months ago disfigured it, there is now a row of handsome and airy

shops. Chapel Walk has, moreover, been chosen as the home of another Art gallery. The Howard Gallery has been opened with an exhibition of pictures from the Goupil Gallery, London. The gallery consists of two spacious and well-lighted rooms, which have been built from the designs of Mr. A. H. Holland, the owner of the property. They are each about 60ft. in length, and the decorations are carried out in the English Renaissance style. The windows are placed in alcoves, but their light is almost superfluous, because of the lantern roof, which throws a plentiful flood of light upon the pictures. Although the lighting arrangements make the rooms peculiarly well fitted for picture exhibitions, they are admirably adapted for social gatherings. The small gallery, which is to be used for water-colours, has been decorated in tones of old gold and brown, which alternates delightfully with the pale green of the wood-work and the old Dutch tiles of the fireplace; and in the large gallery the lower tone and deeper colouring of the walls provides a charming frame for the oil pictures. The staircase windows are filled in with tinted, opalescent glass, and the entrance is floored with mosaic work of vitreous glass. Not large enough to hold any extensive collection, the gallery is well fitted to display small and choice collections, such as the one which Messrs. Goupil are now exhibiting.

TORRY.—Plans have been approved for a new Established Church at Torry. The new church is on the cruciform plan, consisting of the nave and east and west transept, with a semicircular apse at the rear. The walls will be of grey granite—square sneaked rubble—with red granite dressings. The main entrance is at the north end, and leads into a vestibule, which gives entrance to the nave and the gallery. The windows will be fitted with leaded glass. The nave and transept are entirely filled with seating, as is also the single gallery at the north end. The vestry is situated behind the east transept, and the heating chamber is below. The fittings will be of stained pine, and the walls will be decorated. When completed, the church will provide accommodation for about 800. Mr. Arthur H. L. McKinnon, Union Street, Aberdeen, is the architect.

TULLYALLEN.—The foundation stone has been laid for a new church at Tullyallen, which is a short distance from the famed ruins of Mellifont. The new church will occupy a site visible from the ancient fane. Its style of Architecture will be a revival of that in which the Irish artificers erected their sacred buildings in the romantic valley of the Mattock more than seven and a half centuries ago, namely, the Hiberno-Romanesque, with round-headed windows, semi-circular arches, and the characteristic Celtic ornamentation of spiral beads and zig-zags in its mouldings. The frontage is flanked at its northern side by a campanile tower, surmounted by an octagonal spire with cross. The tower is in two stories, and its windows are lofty and narrow. A cornice is carried round the tower below the bell-loft. The tower will rise to a height of 88ft. The height of the frontage to the roof-ridge will be 35ft. The building will be cruciform, consisting of nave, chancel, and transepts; four windows at either side will light the nave. The transepts will be lighted by a large rose window on each gable and lesser cinquefoil windows in the sides. The length of the church will be 122ft., the width across the nave 28ft., and the depth of each transept 14ft. The sanctuary will measure 27ft. by 24ft., and will have a handsome apsidal ending with windows filled with stained glass. The architect is Mr. W. H. Byrne, Suffolk Street. Mr. James Wynne, Dundalk, has the contract for the erection of the building.

WORKSOP.—A new police court has been erected at a cost of £3000 by the Notts County Council. The building is commodious and well appointed. The architect was Mr. Hooley, the county surveyor, and the contract has been carried out by Messrs. Ilett and Sons, Worksop.

Under Discussion

N. A. A.

The first meeting of the Northern Architectural Association Students' Sketching Club was held at Durham on Saturday week. It is the seventh session, and, by the influx of new members, is likely to prove very successful. A competition has always been held for the best work, and since so much has now been done, it is proposed to make up an architectural sketch book, which should compare favourably with other works of this description, for the Northern district is rich in choice examples, including Hexham, Tynemouth, Warkworth, and such smaller examples as Chester-le-Street, Ryton, Bywell, &c., besides the rich store of work that lies almost buried in the beautiful majesty of Durham Cathedral, and in the number of smaller gems that surround that noble pile.

ELECTRICAL VENTILATION.

At a meeting of the Royal Scottish Society of Arts at Edinburgh, Mr. Andrew Beal Bell, President, in the chair, Mr. Wm. Sh. Pleasance, read a paper, in which he gave a detailed description of an electric system of mechanical ventilation which he had invented. His system, he said, could be adapted to any size of building, would change the air in a hall without causing draught, and could be used in pits or mines. Part of his system consisted of an automatic switch by which primary batteries were utilised for working the apparatus.—Mr. D. W. Kemp, Leith, followed with an account of a volumetric gas analysis which he had devised for showing approximately the proportions of lead and tin in an alloy of these metals.—Mr. J. McIntosh exhibited and described a portable stand holding from one to four bicycles.

PIPES AND PIPE LAYING.

At a meeting of the Civil and Mechanical Engineers' Society, held at the Hotel Victoria, Charing Cross, Mr. B. B. Dodley, Vice-President, in the chair, a paper on "Pipes and Pipe Laying" was read by Mr. Alfred Hans. The author first drew attention to the lateness of the subject, but said he would lay the paper to cast-iron and stoneware pipes. He pointed out that to a great extent the health of the town and country depended on the use of proper pipes and several specimens were exhibited, amongst others, a fine specimen of a cast-iron pipe that had been made 100 years. One of the most important points in pipe laying being the proper jointing of two pipes, several methods were discussed, and also the various methods in different countries. The next important point was the depth of the pipe to protect it from the frost, and also the crushing weight by the passing of heavy carts over the manholes and sewers.

FEVER HOSPITAL CONSTRUCTION.

At a recent meeting of the Edinburgh Architectural Association—Mr. Thomas J. the President, in the chair—Bailie Pollock gave an address on "Fever Hospital Structures" with special reference to the new City Hospital at Colinton Mains. It was only in recent years, he said, that local authorities throughout Great Britain had been aroused by public opinion and legislation, so that infectious hospitals were now becoming general all over the country. The prime consideration for the architect of a fever hospital must be to make his structure an instrument of saving life. External appearance was not to be despised, but the internal arrangements must receive closest study and most minute consideration. With reference to situation, he remarked that well-regulated fever hospitals might be even in populous centres without detriment to the community. When the choice of a site was in view, many reasons showed that a hospital was best at a distance from the dwellings, not so much for fear of spreading disease as for the sake of the institution itself. Materials of the structure might be pasteboard, canvas, wood, brick, or

was preferred in Scotland. The laying and arrangement of buildings was dwelt upon, and it was shown how needful it was that the different diseases should be classified, cross infection guarded against; while different parts of the whole structure should be so placed as to secure greatest convenience of access between the sick rooms and administrative, culinary and other departments. Drainage, ventilation, and heating were then described as elements of essential importance, the requisite amount of floor space and air space per bed being also alluded to. The laying out of wards and of ward-scorers, baths, and lavatories was next discussed. Dwellings for the doctors, nurses, attendants, and servants were described, the most suitable arrangements for kitchen, laundry, and other services were dealt with.

SURVEYORS AT MANCHESTER.
The Surveyors' Institution held a meeting at Manchester on Tuesday of last week, it being the first ever held in the provinces. In the absence, through illness, of the President of the Institution (Mr. Christopher Oakley), the chair was taken by Mr. Robert Vigers. A paper was read by Mr. John Holden which dealt with Manchester during the fifty years 1847 to 1897. Mr. Holden showed on a map the lands built upon during this period. Manchester, he remarked, was no longer residential, excepting for those who cannot get away from it, and whom the exigencies of their lives compel to reside in it. The clearing of the insanitary districts has also tended to drive people outwards, and the railway companies and the extension of tram lines have provided facilities for many, even of the ordinary working class, to reside a mile or two out of town. The character of buildings now erected is entirely different from what it was in the past; more regard is paid to air space, sanitary matters, and to the comfort of the tenants. This applies not only to houses, but to business premises. The old back-to-back houses are being gradually swept away, and cellar dwellings have been closed for many years past. The old low-storied and ill-lighted warehouses are superseded by lofty buildings, with as much window space as is consistent with safety, in fact, an ill-lighted house is practically unlettable. The streets as now constructed are very superior. Great efforts are made to form a surface impervious to water without allowing any of it to run into buildings. Mr. C. P. Hall read a paper entitled "A consideration of some of the present-day difficulties met with in a land agent's practice."—Mr. Thomas Blashill, in a paper on "Lessons from Fire and Panic," pointed out the great risks run in minor halls, where amateur performances, bazaars, and dances are held, usually for philanthropic purposes. The responsibility of the architect, as pointed out, was not created by Act of Parliament, and was not limited by it. The architect should run no risks, and should not act as an advocate in order to minimise the cautions which public authorities demand as good advice.—A paper on "Notes on the Construction of Town Buildings," by H. C. Clarke, was afterwards given.—The annual dinner of the members of the Institution was held in the evening at the Grand Hotel. Mr. Robert Vigers, the vice-president, occupied the chair.—The Lord Mayor proposed the toast of "The Surveyors' Institution."—The Vice-President, in his reply, said the members of the profession felt a great pleasure in the Institution, which was the one to which they could rally. One aim the Institution had kept steadily in view was to give the rising generation of Surveyors the best opportunities for learning their profession—opportunities which the older men had had to do without. The Institution began in a very humble way some thirty years ago, and had now a membership of about 3000.—Mr. A. Vernon, proposing the health of the "Local Committee," said that great as Manchester was, it was still room for improvement; the streets were terribly noisy, and they were extraordinarily modest in their ideas as to the architecture of churches and chapels.

Enquiry Department.

"SPECIFICATION"

Enquiry and Legal Departments.

The replies to queries in the "Enquiry" and "Legal" Departments of the "Builders' Journal" being necessarily limited by consideration of space, readers who wish to obtain more complete and exhaustive answers are recommended to apply to the "Legal" and "Enquiry" Departments of "Specification."

Legal advice and opinions on Professional and Constructional matters will promptly be sent through the post.

Rules with regard to these enquiries will be found on page 2 of "Specification."

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ENGINEERING EXAMINATION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I intend studying for the examination for certificate of "Municipal and County Engineers." I am at a loss as to which books are suitable for the different subjects taken. Some are too advanced to be of use to a student. More especially am I perplexed concerning works on hydraulics and the Public Health Act as relating to surveyors. Could you inform me as to what books are suitable, and also please tell me if there is any library from which they can be borrowed?—Yours faithfully, "SUBSCRIBER."

A similar enquiry was answered in our issue of February 2nd. Perhaps, however, some of our readers who have sat for the examination may have some useful hints to offer.

A QUESTION OF COMMISSION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be greatly obliged by your opinion in the following matter: A. is a surveyor, and whilst acting in that capacity for X., a land agent, met B., the owner of some land, part of which X. purchased for a client; at the same time C., a builder, who was developing some land under X., wished to purchase two pieces of land from B. to help the development, but did not care to treat directly with B. In these circumstances he asked X. to allow A. to negotiate for him; permission being accorded, A. made one or two visits between B. and C. in X.'s time as part of ordinary business, but afterwards found that B. was only to be seen in the evening, and so for some eighteen months he has been writing letters and having interviews in his own time quite apart from X., who knew nothing of the progress of negotiations, and whom A. has left for some three months. About nine months ago B. verbally offered £5 5s. as a small present to A., but nothing more has been said, and the matter has dragged on, as I say, for some eighteen months. A. has several letters from B. asking him to see C., &c. Can A. legally claim a proper commission in the event of the sale coming off as it now seems likely to do, and, if so, how much per cent., say, on £500 to £600?—Thanking you in anticipation, yours faithfully, "SHENT-PER-SHENT."

We are inclined to hold that A. is entitled to the usual commission, as his services in negotiating seem to have been accepted by both parties. It might possibly be considered that A.'s former employer X. has a claim, but this question as between X. and A. does not seem to have been raised. If A. is not offered

a sufficient commission, it would be best to claim on the scale of charges authorised by the Institution of Surveyors, as there would be no difficulty in substantiating these. If all liability for commission is repudiated, we should think it advisable to consult a lawyer before taking action.

TO BUILD A COUNTRY HOUSE.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Would you kindly tell me the best way of seeing a choice of plans for a ten-roomed country house of plain design? Those in your back numbers are somewhat more ornamental than I require. Also, as I particularly want to use green slates for the roof, should these be close boarded and felted underneath? Again, where can I get some oak or teak interior doors, so as to keep them by me for a few months before requiring to use them? These doors are for varnishing, clear, not for painting.—Yours obediently, "COUNTRY HOUSE."

In reply to your first query, we think that your best plan would be to consult an architect who has had experience in the class of work mentioned; naturally, if you obtain the use of plans you will have to pay for them. The only other course we can suggest is that you search the columns of the professional journals, but we would add that if inexperienced you are as likely to produce a satisfactory house without expert assistance as you would be to obtain a decently cut suit of clothes without the aid of a tailor. To your further queries, any slated roof is improved by close boarding and felting in its durable, non-conducting, and weatherproof qualities. If you require new doors, you would probably obtain quotations upon stating requirements from either Messrs. Charteris and Longley or Messrs. Thos. Gregory and Co., whose addresses appear in our advertisement columns, or from the Elliot Joinery Co., Ltd., Newbury, Berks. If you require secondhand doors, an advertisement in the Daily Chronicle will possibly meet with a reply. We would advise, in the case of new doors, that you obtain them "framed up," but not wedged up, as they will season better if left loose.

IVY WOOD.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should like to know if any of your numerous readers have had any experience with the wood produced by the common ivy. I have just obtained a specimen of this wood about 9in. in diameter, and it seems to me that the wood when dry is likely to be hard, of a light yellow colour, and very durable. It contains very many medullary rays, which are quite conspicuous both on the transverse and vertical sections, the pith or medulla is of a dark brown colour and about 3in. in diameter; the cortex of the tree is extremely thick for the size of the stem, it being 3in. thick. The wood in texture is not unlike beech, though the annual rings are rather smaller, and the autumn wood is not so easily distinguished from the spring wood. There does not appear to be an undue proportion of sap wood, the weight I should judge to be about equal to acacia, though, my specimen not being seasoned, I may be wrong in my estimation. I am aware that it would not be suitable for making large articles out of, as it cannot be procured in any size, but what I should like to know is whether it warps much, its strength, if possible, and whether it is suitable for inlay work. Also any other points that your readers may have had experience with in connection with this wood will be of interest to me, personal experience being valued far above that extracted from books, as I am able to supply myself with all such information.—I remain, yours truly, "EVERGREEN."

The foundation-stone of the new Intermediate School at Penygroes has been laid. The contract has been let to Mr. Richard Jones, Llanwrda, the architect being Mr. Evan Evans, C.E., the county surveyor of Carnarvonshire.

Trade and Craft.

DICK'S ASBESTOS CO.

Dick's Asbestos Co., of Canning Town, inform us that they have taken offices at Nos. 51 and 52, Fenchurch Street, E.C.

CHANGE OF ADDRESS.

The firm of Veronese Ltd., the well-known fibrous plaster manufacturers, have removed their West End office to No. 12, Norfolk Street, Strand, W.C. The firm has issued a circular containing particulars of a few of its specialities, including the Gypsite productions. Photos or specimens of the latest designs in this material or in fibrous plaster will be supplied on application.

ELECTRICAL INSTALLATION.

The Liverpool and London and Globe Insurance Company has issued a book of rules under which they are prepared to allow electrical installation at current rates. Evidently care has been taken, in framing the conditions, to provide all due safeguards. It is pointed out that the principal sources of danger are:—(1) Inferior materials and workmanship, particularly in joints, fittings and connections; (2), conductors of inadequate size and conductivity; (3), perishable and inferior insulating material; (4), dust, dirt and moisture; (5), undue heating; and (6), neglect of frequent testing and inspection. The Company announces that no installation can be accepted in which it is found that these dangers are not reasonably provided against, but the obvious precaution is to employ competent people to carry out the installation. The rules are divided under several headings, and so minutely detail the necessary work that the electrician himself might with advantage peruse them.

CALLENDER'S PURE BITUMEN SHEETING.

Architects and builders are often confronted with the problem of effectually preventing dampness. Even when built with well-seasoned material a building is sometimes liable to become damp by reason of the site either being on marshy land or openly exposed to our varying climate. Many are the inventions designed to meet the difficulty, and no doubt one of the best is Callender's Pure Bitumen Sheeting, for which Messrs. Callender and Montgomery, of 43, Essex Street, Strand, W.C., are the sole selling agents. The material used in its manufacture is obtained from Asphaltum Lake, Trinidad, and is said to possess unique advantages for making walls, floors, &c., impervious to the dreaded moisture that too often ruins wall decorations, rots the floors, and sometimes renders the rooms of a dwelling dangerous for habitation. Callender's Pure Bitumen Sheeting does not contain coal tar or other artificial products, but is manufactured in its natural state, and is supplied ready for use in lengths of 24ft., of any width up to 72in. It is easily and quickly laid, the different pieces being jointed together to form a complete waterproof covering, while another important point is that it is elastic, without any risk of cracking when bent, and will not give way, as ordinary cement or brickwork, on a settlement. It is made in many thicknesses, and therefore is adapted for all kinds of construction. It has already been extensively used by the various railway companies in the United Kingdom for covering arches and bridges, whilst it has been largely employed for lining reservoirs, basements, cellars, swimming baths, storage chambers, culverts and conduits for sewage works, and also in damp coursing, covering flat roofs, &c. The catalogue published by the makers contains numerous illustrations of well-known buildings and bridges in which the material has been used. The manufactory is at Belvedere, Kent.

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LUNDBERG'S ELECTRIC LIGHT FITTINGS.

From the Bradbury Electrical Works, Bradbury Street, Kingsland, London, N., Mr. A. P. Lundberg supplies all the apparatus for the installation of electric light on the latest principles. A cursory glance at his catalogue shows that amongst the productions are the latest kind of switches, including the "Improved Pioneer," which is said to be admirably adapted for high-voltage circuits on account of its quick and long break; the "Unique," made in four sizes, up to fifteen amperes, and largely used for staircase, corridor, and bedroom lighting; the "Midget," the "Main," the "Bowspring," Pear, and the "Tumbler." Mr. Lundberg gives special attention to wiring. That known as the "two-way" has become very popular of late. In this system two switches are used, so that the current to the lamps may be turned on or off by either switch. Thus, on entering the house, the switch near the door is turned on and the whole staircase is illuminated; on reaching the other end of the system (which can be arranged for any particular floor or room), the lamps can be turned off, if required, by the duplicate switch. Then there is the "intermediate" wiring, which is applicable where it is desired to be able to turn the lamps on or off from any floor or room, instead of from the two terminal points only. Mr. Lundberg also supplies various patterns of wall and floor connections, plugs, fuse boards, adapters, cut-outs, ceiling roses, and, in fact, all kinds of electrical fittings.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BRENTWOOD (Essex).—For the erection of workshops, for the Hackney Union Guardians. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C. :—
Potter ... £4,150 | Lambie, Rhyl-street, ... £3,723
Barrett and Power ... 3,970 | Kentish Town* ... 2,373
* Accepted.

BURNLEY.—Accepted for the erection of eight houses, Victoria-terrace, Brierfield. Mr. Dent, architect, Railway-street, Nelson, Lancs. Quantities by the architect:—
Masonry (labour only).—W. Dent, Brierfield, Burnley ... £575 0 0
Joinery.—G. Pollard, Nelson ... 930 0 0
Plumbing.—C. Tattersall, Brierfield ... 370 10 0
Plastering.—Hartley Bros., Nelson ... 184 11 3

BURTONPORT (co. Donegal).—For the erection of a church. Mr. E. J. Toye, architect, Strand, Derry:—
Daniel McCaffery, Strabane, co. Tyrone* £1,640 13 1
Lowest of Three.

CARDIFF.—For the erection of St. Paul's New Congregational Church, Cowbridge-road, for the Committee. Messrs. Veall and Sant, architects, Cardiff:—

For the church, exclusive of galleries including galleries to seat 474.		For the church, exclusive of galleries including galleries to seat 878.	
Shepton and Son	£3,595 3 0	£4,164 0 0	
W. Mathias	3,520 0 0	4,046 0 0	
Symonds and Co.	3,460 0 0	4,020 10 0	
O. Purnell	3,468 0 0	3,975 0 0	
W. H. Ingleson	3,350 0 0	3,936 10 0	
Knox and Wells	3,417 0 0	3,929 0 0	
Turner and Sons	3,280 2 3	3,823 4 6	
C. C. Dunn	3,104 0 0	3,523 8 0	
W. T. Morgan	2,950 0 0	3,411 0 0	

[All of Cardiff.]
* Reduced to £2,640, and accepted.

EGHAM.—For the erection of villas and shoeing forge, Egham Hill, for Messrs. W. and E. Oldridge. Mr. J. W. Ondes, architect, Egham:—
W. Simpson ... £1,366 16 6 | C. Buckeridge* ... 2,083 0 0
W. Beauchamp ... 1,128 0 0 | W. Latchwell (with-drawn) ... 940 10 0
C. Searle ... 995 10 0
* Accepted.

EYNSHAM (Oxon).—For alterations to "The Tannery," Eynsham, for Messrs. Hanley and Co. Mr. H. Quinton, architect, 15, Magdalen-street, Oxford:—
Woolbridge ... £238 | Robinson (accepted) ... 235
Wilkins Bros. ... 235

LEEDS.—For additions to the Friends' School, Raw for the Bicentenary Committee of the Rawdon Free School. Messrs. Jackson and Priestman, surveyors, quantities by surveyors:—
D. Jenkins ... £991 5 5 | H. Kendal ... 2,068
J. Walker & Sons ... 831 0 0 | T. Obank & Sons ... 614
William Atkins ... 776 0 0 | W. Fletcher & Sons ... 614
W. Hargreaves ... 710 12 5 | Rawdon (accepted) ... 614

LLANELLY.—For the erection of school buildings (boys' school, with additions to the infant department) the School Board. Mr. J. B. Morgan, architect, New-Llanelli:—
D. Jenkins ... £3,340 0 0 | T. and J. Brown £2,620
J. Evans ... 3,103 0 0 | B. Howell & Son ... 2,596
G. Mercer ... 2,885 0 0

LLANELLY.—For the erection of a school, St. Paul for the Llanelli School Board. Mr. J. B. Morgan, architect, Llanelli:—
D. Jenkins ... £2,505 | G. Mercer ... 2,505
J. Evans ... 2,361 | B. Howell and Son ... 2,361
T. and J. Brown ... 2,190

LONDON.—For repairs and repainting Homerton School, for the School Board for London:—
Stevens Bros. ... £263 10 | Marchant and Hirst ... 263
Grover ... 594 0 | Silk and Son ... 594
Cruey ... 571 0

LONDON.—For the erection of house and stable College-road, Dulwich, for Mr. Walter Hoggan. Mr. E. J. Sadgrove, architect:—
J. and C. Bowyer ... £6,400 | Ham and Son ... 6,400
W. Young ... 6,240 | J. Bowyer ... 6,240
Lyle Manufacturing Co. ... 6,100 | Edwards and Medway ... 6,100
W. Smith ... 5,984

LONDON.—For pulling down and rebuilding "Gladstone" beer-house, Walworth, S.E., for the Chester Brewery Company, Limited. Mr. T. Walter M. architect:—
C. Ansell ... £1,653 | Ham and Son ... 1,653
W. Smith ... 1,428 | Summerford ... 1,428

LONDON.—For pulling down and rebuilding Nos. 40, 42, Broadway, Stratford, E., for Alderman George I. Mr. Edwin C. Stimson, architect, 22, Abchurch-lane, F. Gate, E.:—
Yerbury and Sons ... £7,993 | W. M. Norton ... 7,993
W. Gregar ... 7,993 | J. Smith and Son ... 7,993
G. J. Hosking ... 7,740 | W. Shummur ... 7,740
W. Downs ... 7,667 | A. Reed and Son ... 7,667
Colls and Sons ... 7,665 | W. H. Lorden & Son ... 7,665
Patman and Fothering-ham ... 7,650 | W. Gladding ... 7,650
Snowin Bros. ... 7,650
* Accepted.

LONDON.—For surface water sewers in Tottenham and High-street, Hornsey, for the Hornsey Urban District Council. Mr. E. J. Lovgrove, engineer and surveyor:—
W. Walker ... £2,736 | G. Ball ... 2,736
Williamson and Sons, Ltd. ... 2,650 | Jackson and Son, Ltd. ... 2,650
Pedrette and Co. ... 2,639 | T. Adams, Green Lanes* ... 2,639
Neave and Son ... 2,425 | C. Ford ... 2,425
* Accepted.

[Surveyor's estimate, £2,306.]

LONDON.—For alterations at the "Prince of Wales" public-house, Prince of Wales-road, N.W., for Mrs. G. Messrs. Lewcock and Calcott, architects, 88, Bishopsgate-street, Within:—
Maple and Co. ... £2,750 | Goadey ... 2,750
Bertram ... 2,520 | Green and Smith ... 2,520
Marchant and Hirst ... 2,145

MAESTEG (Wales).—For the conversion of Plasnewydd House into a school for the higher standards, for the School Board of Maesteg. Mr. E. W. Burnett, architect, Tondur:—
W. Francis ... £1,777 | Ratray and Jenkins, P. Gaylard ... 1,735
E. Evans ... 1,630 | Pontycymer* ... 1,630
* Accepted.

OXFORD.—For additions and alterations to "The Dolphin and Anchor" public-house, St. Aldate's, Oxford, for Messrs. Hanley and Co. Mr. Herbert Quinton, architect, 15, Magdalen-street, Oxford:—
Wilkins Bros. ... £495 | C. H. Churms, Oxford* ... 495
Woolbridge ... 494
* Accepted.

REDHILL (Surrey).—For additions to fireproof furniture, warehouses, Station-road, Redhill, for Messrs. O. Quinn and Sons. Mr. Herbert Quinton, architect, 15, Magdalen-street, Oxford and Redhill:—
Buckland and Waters ... £498 | E. Worsell, Redhill* ... 498
Homan and Rodgers, London, for fireproof flooring, &c. £457 5s. (accepted).

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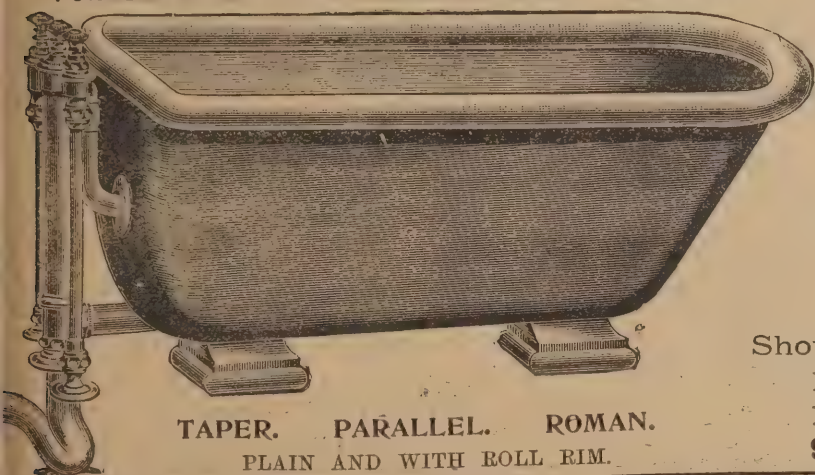
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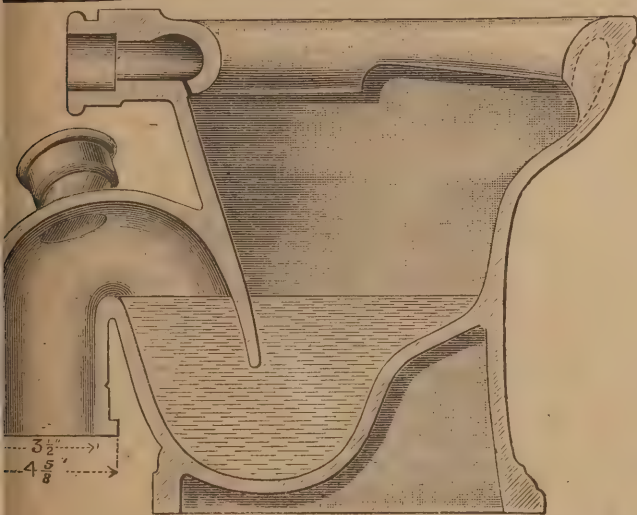
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 H. Morecroft ... £31,988 | Geo. Bell ... £19,960
 Geo. Wimpey ... 24,798 | A. Kellett, Willesden* 19,870
 W. H. Saunders ... 22,580 | Geo. Rutter (with-
 F. A. Jackson ... 20,403 | drawn) ... 18,592
 *Accepted.

WOODFORD.—For the erection of house, Cleveland-road, Woodford, for Mr. H. W. Small. Mr. J. Walter Wyles, architect, 17, Finsbury-pavement, E.C.—
 E. Wells and Son ... £897 | J. Joliffe ... £625
 F. Ranger ... 675 | T. Young, Woodford* ... 560
 J. Riley ... 625 | *Accepted.

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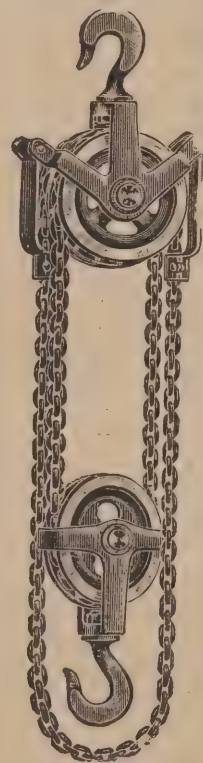
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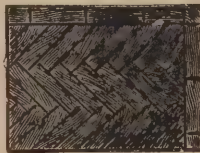
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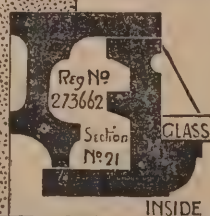
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OUR CRITICS AT THE ACADEMY.

No. I.—THE ARCHITECTURAL ROOM.

IT is difficult for anyone possessing a sense of humour and of the fitness of things to take this room, called "Architectural," very seriously. The white, woe-begone look it wears compared to the Painting and Sculpture Galleries is irresistibly amusing. The place always seems to apologise to the public for the very poor show it has to offer. There are some, there may be a dozen, pictures that appeal to artists who are not architects, but the remainder are interesting only to those architects who are not artists. This may seem unkind, but it is as true as it is unhappily trite. It does not matter much perhaps. If the exhibits in the room are "caviare to the general," we could, with patience, survive that, but that artists themselves weary of it and are only known to visit the room when captured and led there by an architect friend is dispiriting to say the least of it. We recall—not with much pleasure—the look of astonishment on the face of a certain well-known R.A., a painter (and an artist), when a friend of his, an art critic, asked to be "shown the way to the Architectural room." "Are you serious?" said the painter. "Certainly," said the critic; and together they went in search of it. It is on record that they stayed in the room fully ten minutes, sighed simultaneously and left! Some weeks after, at the end of the concluding "Royal Academy Notice" in the pages of a great London daily, appeared these words: "The architects are best left to themselves." This then is the total result that representative Architecture of to-day in Britain makes upon the public. Think, ye of an optimistic turn of mind, "*Architecture—the greatest of all the Arts—is best left to itself.*" Architecture, formerly the Queen of the Arts, cannot to-day arouse even ordinary interest—enthusiasm is out of the question. "We should make some progress in Architecture," said one of the artful crafty ones the other day, "if it weren't for architects"—a vitriolic kind of saying, which has some truth, as Shaftesbury Avenue and the Architectural Room at the Academy testify. The fact is, that which is best in modern Architecture is nearly always unrepresented there. What for? Will you find the work of the great master builder, Philip Webb, within the walls? or that of John Bentley? or of Gilbert Scott, the younger? It is true we have occasional glimpses (dimly through the veil of inadequate illustration) of Norman Shaw and of Bodley. The former this year, however, has nothing, and the latter is disappointing. The truth of it all is, that the many of the architects who are artists, like Kipling's hero, "*don't advertise.*" But is this fair to their art and brother artists? We imagine their reply would be; "If you want to know of our work, go and see the reality." Yes, but how many architects could name and place their buildings? How many more would be stimulated and fascinated by such work, and led to study the actuality of their own gain if the authors of it would only permit of its illustration on the Academy

walls? It is a debt, we venture to say with all respect, they owe to their fellow workers, to their art, and to themselves. By so doing, they would leaven the awful lump of modern building, and lead us in the end to better things. For the present, however, we must content ourselves with what pearls we can find in this year's exhibition, and hope that these words which are worth the saying, and should have been said long ago, will tend towards producing a room at the Academy which may justly be called architectural. We can wish for no better result than that.

The dozen picture exhibits we referred to at the beginning (to be quite just, there may be a few more than that) are, for the greater

course, is the usual thing. Year after year complaints are made of the same kind until it becomes exasperating, but it makes not the slightest impression upon the worthy carpenters, to whom such matters are evidently left.

The exhibits possessing the most distinction and interest are those by Mr. Wilson of his new church at Brighton, illustrated by a strong, yet nervous charcoal drawing, most admirable and telling in its general effect—the most artistic picture in the room; Mr. Nicholson's interior of Saint Alban's, Southend, a really beautiful water-colour of a broad, simple, and dignified church interior, which, by the way, was one of the



TOMBS FROM THE OLD MONASTERY BUILDINGS, MONTSERRAT. CLOISTER OF THE ATRIUM.

part, the works of men well-known, illustrating well-known works. There is nothing startling. There is nothing fresh; and yet, as a whole, the exhibition is distinctly better than last year. There is a good deal that is very disappointing hung well, and much that is very good hung badly. Bird's-eye views, such as that of "The Roedean School," by Mr. Simpson (an excellent example of his severe and balanced work, and shown by a sympathetic drawing by Raffles Davison) are skied, when, of course, they should be on the eye-level; strong colour and pen drawings, which would bear a little distance, are line hung. But all this, of

most inspiring results of last year's competitions; Mr. Leonard Stokes' three drawings of "Shooter's Hill House at Pangbourne," the finest example of domestic work at the Academy, and probably one of the best works of Art he has ever produced. How beautiful that and Mr. Stokes' own delightful house look from the Thames in the evening sunlight all lovers of Pangbourne know by now. The drawings illustrating the house (in coloured chalks) by Mr. E. A. Rickards are strong and artistic—a little crude, yet full of life and light, of colour and "go." Then there is the pen drawing by the same artist, of the winning design for the New Town Hall and

Law Courts at Cardiff, by Messrs. Lanchester, Stewart, and Rickards. This is the best result that the competition system has produced for many a long day. Broad and big in handling the design as a whole is beautiful, and the plan (which is not shown) is a masterpiece. Cardiff is to be envied its future Town Hall, and competitions will receive an impetus from this result better than all the defence the Institute can give them.

Mr. Belcher's design for Colchester Town Hall and for the Cambridge Guildhall, both of which are on the right hand wall as you enter, have been illustrated in our pages, but the former design has been amended and improved and illustrated anew by that well-known and admirable water-colour painter, Mr. McGuinness. Mr. Belcher also contributes a fine detail drawing in water-colour, illustrated by himself, of the upper portion of the Colchester Town Hall. We admire the "quality" of the work here much more than in the perspective view. Another picture possessing much distinction shows the interior (the entrance hall) of a house at Pangbourne, with a vaulted stone roof decorated with strap work, so fresh and excellent in design and drawing, and so different to the exterior of the same house (illustrated by a pen drawing, which looks as if some accident had happened to it) which hangs above it. We were just on the point of borrowing a step-ladder from the carpenter (these notes were made on Varnishing Day) in order to see what was really the matter with the drawing and to read the signature, when a painter friend came in and carried us away to see Abbey's grand picture (from "King Lear") in the centre of the end of gallery No. 2, which made us forget all about Architecture for the rest of the day. So Mr. Mountford's splendid model of his Liverpool Museum, which shows to such advantage and helps the exhibition so much, and Messrs. Read and Macdonald's "Country House" and the "Westmoreland Church," by Mr. Hawes, both of which are illustrated by excellent models, must be left for another visit.

C. E. M.

NO. II.—THE PICTURE GALLERIES.

It will be found that the writer of this short notice has given about 1000 words to as many oil paintings, and certain it is that he has not exhausted the subject. "A cultivated rejective instinct" is the *sine qua non* of the critic, he said to himself while engaged in collecting his thoughts, and observed that were he to treat of the same, even summarily, he would provide unsolicited material for an extra special supplementary number of THE BUILDERS' JOURNAL. The effect of a first visit is generally to crowd the brain with such thoughts. The average is high, and the amount of creditable work most remarkable. The idea would still appear to be general, although it has been ridiculed often enough, that the President must produce the best; the R.A.'s, out of respect to their superior, something only a little inferior; and the A.R.A.'s something a grade below that; but the fact, of course, is that the surprise of the year is always prepared by someone but little known. It is not for surprises that the writer is looking, however. He believes most sincerely that English Art has a place of its own in the world, and that whenever a picture is shown that mirrors its little of life—be it that of the soul or the body; be it landscape, seascape, portrait, or anything else; a picture in which the paint and the painter are the last to be thought of—we then may be sure there is health in the country's Art. In every annual exhibition works for the most part unnoted may be

counted by hundreds which agree with the description just given, and the writer takes infinite pleasure in observing how many there are. The pity is, and he feels it, that he may not attract attention to each of such paintings. The necessity of criticising—that is to say, praising or blaming the merely notorious—is incidental to the critical habit. If one's enjoyments could only be measured and paid for as one's opinions are, how different the world would be! The foregoing must be his apology for himself, and for what is to follow, namely, a few scattered appreciations suggested by painters whose works, great or small, agree with the idea he has of what pictures should be. During the hours that are spent in Burlington House our recollections of the world's masterpieces may be temporarily ousted, but within an hour of leaving the place they are present again, and we are then better fit than we were to compare English Art of the year 1898 either with that of our contemporaries or with what we have had in the past. In the first of the galleries there would seem to be nothing remarkable. The Academicians whose pictures are there have their best in the other rooms. What has been said of the eldest need not be repeated. The pure pleasure of praising is to be ours, and even if space were given we would not avail ourselves of the opportunity. An Academician who shows not a sign of declining strength is the painter of the beautiful portraits in Room II.—Nos. 101 and 163. "October" (No. 152), by Stanhope Forbes, although a grey and sunless picture, cannot fail to delight the lover of Architecture who also knows something of Art. We are outside of a Cornish church, perhaps, the wall of the yard between ourselves and the building. The paintings above mentioned will be found in the second room. In the third, No. 240, by W. H. Margetson, was the first to attract attention. The writer has formed a habit based on a single experience of looking eagerly for this painter's works. The scene, so far as he remembers, is occupied almost invariably by a single female figure, a figure taken from life, that is nevertheless shaped by the soul, and of subtle and singular beauty. No. 243, by Mr. Orchardson, represents a husband in "Trouble," and varies so little in the manner of painting, the internal arrangements, and in the disposition of the two figures—who, as usual, are husband and wife—that it can only be described as characteristic and typical. Mr. Andrew Gow, R.A., is a dramatic artist of the highest order. His power is shown here in the only way in which a painter can show it, namely, by concentrating his attack, and making the utmost of the situation. The technique is simply superb, but one thinks last of that, if at all. Mr. William Bougereau's picture ("Les Petites Amis") of the two children is sweet beyond description; but even this cannot be said without encroaching somewhat upon space, and the comments upon other pictures must be made even shorter. In the fourth gallery the pictures, either remarkable or beautiful, or both, are "Sappho," 307, by Laurence Koe; "The Masters," 326, by Alfred Parsons, perhaps the finest landscape exhibited; "Ripe," 329, by Th. E. Macklin, a girl with a barrowful of apples; "Fortune and the Boy," No. 331, by John M. Swan; "A Glimpse of the Sea," 353, by Frederic Staepoole, scarcely a glimpse even, so small is the picture, but one is most grateful for it; "Katherine," a portrait, 346, by J. H. Boughton, R.A. E. R.

THE Royal Academy banquet took place on Saturday night at Burlington House. Sir E. Poynter, the President, was in the chair, and there was a very large and distinguished gathering of guests. The Prince of Wales was amongst those present.

ART IN THE VILLAGE.

A CRUSADE IN CRAFTS.

THE Cambridge County Council can boast of having successfully introduced half a dozen flourishing village industries into the somewhat sleepy arena of rural life. Considerable opposition met the efforts of the Council to introduce carpentry, smithy work, basket weaving, and other arts and crafts into the villages of the county. The result of its labours in the cause of education has more than justified perseverance, and admirable specimens of various handicrafts, of bent iron and repoussé work, may now be seen, which have been turned out by hands straight from the plough. At Newton, a tiny hamlet with a population under 200, some eleven young men were found actively hammering copper and brass into decorative designs, the scene presenting such an artistic picture as may be found in the bent iron and metalwork schools throughout Belgium. Close by, in a disused coach-house, half-a-dozen villagers gathered round a forge were busy at the bellows fashioning the tools necessary to repoussé, soldering, and finishing off their handiwork. "All these men have been sowing barley to-day," said Mr. Hurrell, the squire, who for the past seven years has devoted most of his evenings to the technical teaching of the villagers. He procures their designs, instructs them in the various stages of their pupilage, and disposes of the finished work. "Many people send us orders for repoussé wedding presents," he said, showing a beautiful beaten brass mirror frame being finished by a boy "from the plough" in time for a fashionable London marriage. Very simple tools are used, and these the pupils learn to forge for themselves, so that they may hold a complete craft in their hands. The crusade in crafts began at Newton in 1890 with

A CLASS IN MOSAICS.

an art which proved most teachable to village pupils, but the market becoming somewhat uncertain, bent iron was the next stage in artistic evolution, passing later on to repoussé, which is a flourishing industry, and offers a good market. In this little village a good repoussé worker may earn a shilling a night, the "working night" averaging an hour and a half, such a sum representing a material addition to the income of a farm labourer. Boys on leaving school are eligible to join the class, so that latent artistic skill has every chance, in this fortunate little hamlet, of early recognition. It is quite a revelation to find that a beautiful copper overmantel, which would adorn the "stateliest home," is the "spare time" work of a ploughman. At the neighbouring village of Fowlmere a very different class of crafts holds the rural taste, for in each instance the arts taught are the outcome of local selection. Fowlmere distinguishes itself by basket-making, chip carving, and carpentry.

AT THE CAMBRIDGE TECHNICAL INSTITUTE.

The Cambridgeshire County Council receives much encouragement in its technical enterprises from squires and farmers alike, who aver that their labourers, after going through a carpentry course, are well worth an extra two shillings a week from their capacity "to use their hands." At the Technical Institute in Cambridge forge and smithy classes are held periodically, and to these farm labourers from every part of the county are welcomed, their travelling expenses being paid by a County Council grant. A course of such smithy work frequently converts a clumsy labourer into a smart worker, invaluable to his employer from his capacity for repairing machinery and doing effective smithying on the farm. Such a labourer not only earns extra wages, but his mechanical skill ensures him steady employment, and raises the standard of excellence in work generally.

SPAIN:

Its Picturesque Cities and Monasteries.

THE MONASTERY OF MONTSERRAT.

By F. HAMILTON JACKSON.

(Continued from page 214.)

THE monastery of Montserrat owes its existence to an image of the Virgin, said to have been carved by St. Luke and brought to Barcelona by St. Peter in the year 50 A.D. At the Moorish invasion in 717 the Goths hid it in a cave in the hill, where it remained until 880. That year some shepherds were attracted to the spot by heavenly lights and sweet music; and this being noised abroad, Gondemar, the bishop of Vich, guided by a sweet smell, found the image, which he determined to take to Anresia. But at the spot marked by the cross already mentioned he refused to proceed further. There it was consequently deposited, and a chapel built over it. Round this chapel a nunnery was erected, and in 976 this was enlarged and converted into a Benedictine monastery. The image rested on the primitive altar about 700 years, until a new chapel was built in 1592 by Philip II., to which it was moved under Philip III.'s personal supervision on July 11th, 1599, as an inscription in the cloister records.

In 1811 the French, under Suchet, paid the image a visit—not for purposes of pilgrimage. They amused themselves with hunting the monks like wild goats first, and, having butchered them, proceeded to the monastery, where they plundered the altars, hanged the monks, robbed even the poor pilgrims, and burnt the fine library. They also carried off the stores and arms provided by England for the Spaniards, which had been taken to Montserrat under the supposition that it was an impregnable place. In 1835 the monastery was suppressed, and despoiled of its vast treasures accumulated during the middle ages. At the buildings were allowed to remain, as well as a few of the fathers to take care of the shrine, and of late years the church has been restored and largely rebuilt, and the accommodation for pilgrims immensely increased. The facade of the church is that which Philip II. the Second built, as well as the cloister in front of it, a somewhat handsome Renaissance composition. Within is a Retablo carved by Esteban Jordan and a fine screen or iron screen, made by Cristobal de Alamanca in 1578. These must have belonged to the earlier church, and it was in that also that Loyola watched before the Virgin, previously to dedicating himself to her as her knight, and the founding of the order of the Society of Jesus, as an inscription in the Atrium records; he then laid his sword on her altar, which sword is now preserved in the church of St. Belem, at Barcelona. The holy image is placed in a little chapel behind the high altar, to which the faithful ascend by steps, and having said their prayer and kissed it, descend on the other side, placing their offerings in a box which projects invitingly in their path. It is a small carved wooden image holding the child in its lap "regularly handsome, but the colour of a negro woman," and possesses magnificent robes and jewels. In 1811 it was solemnly crowned with a crown sent from Rome by the Pope Leo XIII. Quantities of *ex votos* are offered at the shrine—wax models of ships, limbs, pictures and other, jewels and silver hearts. It is one of the most celebrated images in Spain, and is the patroness of Catalonia. It is visited by more than 80,000 pilgrims annually still, though shorn of much of the pomp and glory of 100 years ago. Then there were seventy monks in the monastery, twenty-eight lay brothers, twenty-five singing boys, with surgeon, physician, and servants. Its possessions then consisted of numerous hamlets, besides quantities of plate and jewels, including eighty-five silver lamps. Of these the French recovered seventy-four, professing that their instant burning before the image was pagan!

The entrance to the church from the monastery is over a little bridge on the north side at the height of the clerestory, and the monks are not visible to the public at all, excepting, of course, the guest-master, who arranges for the lodging of pilgrims. There is a choir containing boys' voices, which is well-trained, and a "Salve Regina," sung by them in the dusk, when the church is only lighted by twinkling tapers, affords an emotion to those who are sensitive to such influences.

The path which leads to the Virgin's Cave, "La Cueva de la Virgen," crosses the funicular railway just above the one tunnel which pierces the shoulder of the mountain, and descends rapidly, following the contour of the precipices. It is about a quarter of an hour's walk to the chapel, which contains the cave with a pieta within it under a great arch, over which the fabric of the chapel is built, a Renaissance structure rather Italian in appearance. From the oratory by the main road, at the last turn towards the monastery it looks very picturesque. This oratory and the one called the hermitage of St. Asiscle, which has an avenue of cypresses leading to it, and what purports to be a portrait statue in a niche over the door, lying a little above the road and to the east of the church, are the only really old buildings left. They date from the twelfth century. Most of the hermitages have been so much restored as to be uninteresting, or have been left ruined as they were after the French occupation. From the hermitage of St. Asiscle a path leads by the north of the church back to the atrium, from which unusual point of view the combination of the towering wall and great buttresses of the church, with the lofty and strangely shaped peaks of the

mountain seen over and through them, produces an impressive effect.

To ascend towards the summit of the mountain, which is where the hermitage of San Geronimo is situated, on a peak directly above the monastery, but nearly 1000ft. higher, one descends to the resting place outside the gateway before referred to, passes by the station and the mule stand, and takes a woodland path on the other side of the gorge.

Immediately a mendicant is seen, who tells you that he subsists on the charity of those who ascend the mountain, and that he is authorised to collect your alms! After this the path begins to ascend and winds through bushes, flowering plants, and shrubs, which in the month of May scent the air with their fragrance and delight the eye with their beauty. I am no botanist, nor is this a botanical article, though one might be written upon the flora of Montserrat, which comprises many strange forms not met with elsewhere in Europe, but I may mention a few plants which caught my eye—ilex, juniper, olive, several ericas, broomrape, several sorts of cistus, several sedums, whortle berries, box (which grows to a large size, and from which the monks used to carve spoons, which when stained red were sold to pilgrims to assist digestion!) a magnificent henbane growing to the height of 30in. or so, and a beautiful flowering rush of a pale amethystine blue, the blossom resembling *triteleia uniflora* in shape and marking. Wild roses are seen occasionally, and cyttus, marigolds grow wild by the wayside, and pink valerian hangs in masses from walls and stony shelves. Here, as in much of the rest of Spain, the difference between barrenness and fertility is a question of water supply, and in



PASSAGE BEHIND THE CHURCH, MONTSERRAT.

those places where the earth lodges, and remains damp, the vegetation is profuse and luxuriant. True statesmanship should suggest to the Spaniards of the ruling caste a policy of irrigation and tree planting, which would, before many years, increase the prosperity of the country enormously.

Although for the sake of the view a clear atmosphere is to be desired when visiting this most picturesque place, the effect of the mountain itself is much enhanced by a mist such



MONTSERRAT: THE CHURCH FROM THE EAST.

as one sometimes sees on an autumn morning in England. Then the jagged peaks appear and disappear as the mists thin or thicken, and the clearing away which discloses suddenly so many miles of landscape at one's feet produces a most startling and unusual effect. As one wanders along the narrow mountain paths, or stays for a while in perplexity, the scent of flowers and of resinous trees comes in wafts from plants which are invisible, and ever and anon one hears the bell sounding from the church where prayer seems to be made without cessation. And then the sun breaks through and the mists clear away, and one sees again the paths winding along the face of the precipices, ascending as they do to bare grey summits or descending to sheltered valleys filled with evergreens and flowers, and the wonderful distance is again spread before one's eyes in its perennial beauty.

As we left the monastery one of these mists began to unroll from the mountain top, and as we descended to the valley the cloud gathered and increased till the whole summit of Montserrat was hidden by a mysterious veil—fit symbol of the darkness which broods over the minds of the pilgrims whom we met ascending towards the shrine, some few riding, but most of them on foot; the last company whom we encountered on the bridge of Monistrol consisting of a number of peasants or labouring men, who were barefoot and clad in white bordered smocks, girdled with rope and with white caps on their heads, carrying tapers and rosaries in their hands. Some were young, some older, and they were conducted by a man who was shod and dressed in Catalonian costume. We exchanged a "buenos dias," and went our several ways, they to worship at the mysterious shrine in the clouds, we to busy Barcelona.

A LOCAL GOVERNMENT BOARD inquiry has been held at Wakefield with reference to an application made by the City Council for sanction to borrow £14,776 for purposes of street improvements, and £1224 for works of sewerage.

The Governors of the Belgrave Hospital for Children have decided to transfer the present hospital to a site in Kennington, adjoining St. Mark's Church, in the Clapham Road. The sum of £50,000 is required to carry the scheme into practical effect.

MANX CROSSES.*

By P. M. C. KERMODE.

THE Early Christian stone monuments in the Isle of Man, of which about 100 have been brought to light, extending over a period from about the sixth to the thirteenth centuries, consist of upright rectangular stone slabs, from 3ft. to 8ft. high, bearing inscriptions in Oghams, in Roman, or in Runic characters; and showing on one or both faces the figure of a cross incised or sculptured in low relief, and sometimes decorated with characteristic Celtic ornament. These fall very naturally into two classes, the Scandinavian and the earlier Celtic pieces. They are distributed around the island. There are no fewer than twenty-five places in which they have been found—generally within or near one of our ancient Christian burial grounds. They are, in fact, tombstones erected to the great ones of their day by their Christian friends and relatives. South of a line between Peel and Braddan they are, with two exceptions, purely Celtic. North of this they are more evenly distributed. By far the greatest number (twenty-six) have been found in

Maughold, which was probably one of our earliest churches, and a place of great sanctity. Next come Braddan (ten), Michael (eight), and Andreas (eight). Of the purely Celtic pieces there are two divisions—those bearing Ogham inscriptions, and those showing early forms of crosses, a few of which are decorated. The origin of Ogham characters has not yet been determined. They occur chiefly in Ireland, especially in the south-west, about 200 having been recorded. Next comes Wales with twenty; Scotland can boast about half-a-dozen; two have been found in Devonshire; and one in Cornwall. Their period is undoubtedly that of the introduction of Christianity, and some are evidently Pagan. The language is Irish of the fifth century. The characters consist of scores, arranged in four groups of from one to five cut on one or other side of, and across the arrior or corner of the stone; they read from below upwards, from left to right. We must now consider the

ORNAMENT OF THESE MONUMENTS.

The decorative designs of the early Celtic MSS. and stone monuments are arranged in rectangular panels: "absence of foliage is a characteristic, and intricacy, minuteness, and elaboration of interlaced patterns, diagonal or spiral lines, and monstrous animals and birds with long top-knots, tongues, and tails, interlacing in endless knots." Scandinavian Art, as shown in Pagan and Early Christian stone monuments, is distinctly zoomorphic, conventional dragons and serpents being favourite forms. The interlaced patterns are generally loose, irregular, and disconnected, appearing more or less accidental. In the wood-carving of Norway, rude foliage is a very conspicuous

* Extracts from a lecture delivered under the auspices of the Isle of Man Natural History and Antiquarian Society.

feature. The decoration of our Manx monuments is Celtic in the absence of foliage, and, to a certain extent, in the character of the

INTERLACED WORK.

It shows other influence in the general absence of panel arrangement, diagonal and spiral patterns, and in the character of the zoomorphism. Following in the lines of Mr. Romilly Allen's able analysis, Proc. S.A. Scot. Vol. 17 (1883); the sculpture of these Manx crosses falls under the following heads:—Geometric, zoomorphic, and pictorial. Of the geometric, we have fret, scroll, and interlacing. The chevron occurs only on the large cross at Bride, and a broken piece at Michael. The universal step is met with on eight stones, which, curiously enough, are all Scandinavian; and various forms of the key pattern or Greek fret on twelve, also Scandinavian. Of interlaced patterns, the simple twist is rarely used. A double twist of four bands, better adapted for filling a wider space, occurs on the Onon Cross, Jurby. From the twist are developed several distinct patterns. A twist with rings at each intersection, very rarely met with in pure Celtic Art, and less uncommon on Welsh crosses than elsewhere, occurs on twelve pieces, of which eleven are certainly Scandinavian. A double twist with rings, which in this case are always diamond-shaped, is to be seen on seven pieces, of which five are certainly Scandinavian. The use of this pattern elsewhere is very rare. It occurs but once in Scotland, on a cross at Drainie. The development from the twist to the tendril pattern is peculiar to the Isle of Man. We find it a favourite of the sculptor Gant Bjornson, who so proudly boasts in a Runic inscription at Michael that he "carved this and all in Man." There remains one more form of ornamentation to be considered, the pictorial. The

MANX MONUMENTS

bear figures of men, beasts, and birds, and inanimate objects; symbols; and representations of Scriptural subjects. Of the latter we have four—"The Temptation of Adam and Eve," "Daniel in the Lions' Den," and "The Crucifixion," which are of the most frequent occurrence in Ireland; and "The Virgin and Child," which is met with in Scotland next in frequency to "Daniel in the Lions' Den" and "The Crucifixion" (but only two instances of the latter are on the sculptured stones). In conclusion, I wish to impress upon you that these Manx sculptured stones are not mere copies of Irish, or of Scotch, or Welsh, or other pieces; they belong to the same Art school, the Celtic, which itself is a de-



FRAGMENT OF FIFTEENTH CENTURY CLOISTER AND ROMANESQUE WALL, MONTSERRAT.

velopment of the Lombardo-Byzantine, but they are as truly original, and show as much individuality, as much of the genius loci as the Welsh, or the Scotch, or the Irish—they are, in every sense of the word, national monuments, and should be prized as such.

A Famous Irish Cathedral.

RESTORATION AT CLONFERT.

CLONFERT CATHEDRAL, during the thirteen hundred years of its existence, has passed through many vicissitudes. It has just undergone the ordeal of restoration—at least, a scheme for preserving this ancient fane has been carried out in part. Some interesting particulars concerning the cathedral have been supplied by the rector, who, dealing with the history of the fabric, says: "Six times was it burnt between the eighth and twelfth centuries. Thrice was it plundered between the tenth and eleventh. These depredations were not all committed by the heathen Danes, who frequently sailed up the River Shannon from Limerick and attacked Clonfert, but at times by the Irish themselves. When an Irish chieftain on one side of the Shannon had a quarrel with an Irish chieftain on the other side of the Shannon, his usual mode of punishing his enemy was by crossing the river and battering down Clonfert. It is surprising that anything ancient has remained, so frequently has Clonfert been burnt, plundered, and destroyed." And, concerning the Architecture of the edifice, the rector reminds us that the cathedral is celebrated for its magnificent doorway—one of the finest specimens of

HIBERNO-ROMANESQUE ARCHITECTURE

in existence. The doorway dates from the year 1166. Mr. Brash, in his work on "Irish Ecclesiastical Architecture," gives a long description of the doorway, and concludes by saying:—"Norman porches and doorways, of course, exist of grander proportions, but not exhibiting the fertility of invention and beauty of design that this does. I had to relinquish my intention of making a drawing of it; nothing but photography could accurately represent the wonderful variety of its ornaments." The cathedral is also remarkable for its beautiful east window, nearly a thousand years old. Mr. Brash gives a drawing of the window in his book, and says:—"The design of this window is exceedingly chaste and beautiful, the mouldings simple and effective, and the workmanship superior to anything I have seen either of ancient or modern times. The mouldings are finely wrought, and the jointings of the stonework so close that I cannot believe they were ever worked by tools. The ashlar must have been rubbed on their joints to make such close work." When the Royal Society of Antiquaries of Ireland visited Clonfert some years ago, they expressed themselves enraptured with

ITS MAGNIFICENT DOORWAY.

They stood astonished when they first beheld this marvellous specimen of Hiberno-Romanesque work. One member of the Society, in speaking about the building, calls it the exquisite Cathedral of Clonfert. A Quaker gentleman, an ex-member of Parliament, writing in a magazine some time ago, says:—"It would be worth a pilgrimage into Connaught to see Clonfert doorway alone." Clonfert at one time was a city, and celebrated for its schools. It is now not even a village. In the reign of Queen Elizabeth, before Trinity College, Dublin, was founded, Clonfert was proposed as a suitable site for the University, as it was then celebrated as a seat of learning, and being in the centre of Ireland, a convenient place for Irish students, but this proposition was rejected, and Dublin obtained the charter. In the year 1175, when Roderic O'Connor, King of Ireland, carried on his negotiations with Henry II., King of England, the Abbot of Clonfert was one of the ambassadors sent by him to Windsor. "I beg to submit," concludes Canon M'Larny, the rector, "that the preservation of a church founded as far back as the year 558—connecting the present with the past, the nineteenth century with the sixth—and possessing historic interest and architectural beauty, is a work which will commend itself to the approval of all." Mr. J. T. Fuller, F.S.A., is the architect for the restoration.

Oratory N° XXVIII



SKETCHED BY F. HAMILTON JACKSON.

WESTMINSTER IMPROVEMENT.

PARLIAMENT REJECTS THE SCHEME.

PARLIAMENT has rejected the Westminster Improvement Scheme with emphasis. The motion for the second reading of the Bill—the Victoria Embankment Extension and St. John's Improvement Bill—came before the House of Commons on Wednesday of last week, when the measure was ousted by a majority of 252.

Mr. Burdett-Coutts, moving the rejection of the Bill, said it proposed to deal with a site which, from an architectural and a historic point of view, was the most valuable and interesting that remained to be dealt with in London. He claimed that where public interest came into conflict with the private interest of a syndicate, the private interest must go to the wall. The public benefits possible to the scheme were two—the making of the embankment and the making of a main thoroughfare. The promoters said they were going to complete the section of the embankment extending from the Victoria Tower Gardens, past Lambeth Bridge. He submitted that the project sacrificed such a hope for ever. The great road facing the Houses of Parliament ought to be carried straight to Lambeth Bridge, to form a junction with the rest of the embankment beyond Lambeth Bridge. That road ought to be left open on its river side; the space between it and the river should be maintained as an open space for the continuation of the Victoria Tower Garden, gradually narrowing down to the bridge. The public would then have a clear view of the river, and

THE PICTURESQUE LAMBETH SIDE,

or, if on the river, they would have an uninterrupted view of the Palace of Westminster. That was the only plan worthy of the dignity and beauty of the site, and it was the plan for which the site afforded the most obvious and natural facilities, so long as it was treated in a public, and not a money-making spirit. In place of that the scheme offered them a great block of buildings right up against Victoria Gardens, between the main road and the river, and a little narrow road for an embankment, approached by a still narrower street. Traffic passing from the south side of Lambeth Bridge along this embankment road to the front of that House would have to turn four right angles. In order to make the block of buildings as deep and as valuable as possible the Avenue was pushed back, and made to debouch into the narrow Horseferry Road,

which ran at right angles to it, at a point where it was not 40ft. wide, and where it would form a dead end to this precious Avenue. The river block of buildings was

A GLARING OBJECTION,

but it was necessary to the dividends of the syndicate. In his opinion the treatment of this great national question, so far as the immediate vicinity of the Houses of Parliament was concerned, ought to be a national affair.—Mr. T. H. Robertson seconded the amendment.—Sir J. Lubbock remarked upon the fact that both the mover and seconder of the motion for rejection had admitted that improvement was necessary, and that the buildings occupying the site proposed to be cleared were absolutely unworthy of the position they occupied in proximity to the Houses of Parliament and Westminster Abbey. Their desire was to make the district worthy of its great surroundings, and they would gladly accept from the Committee any suggestion having that object in view.—Mr. Burns thought as this was

THE FINEST SITE IN LONDON,

it ought to be occupied, if at all, by the new War Office, the new Education Department, or some other Government building. The County Council were pledged to go on with the embankment scheme, but they objected to be dictated to as to the form the extension should take. The House was asked to sanction the erection of a cheap, nasty, red-brick block of flats, or, worse still, a Continental hotel full of derelict millionaires from South Africa and South America, at the price of vandalising the approaches to the Houses of Parliament and turning 6000 people out of their houses.—The House divided: for the second reading, 84; against, 336—majority against, 252.

A MEETING of parishioners has been held at Worstead to consider the report of Sir Arthur Blomfield on the proposed restoration of the parish church. The purport of it was to divide the necessary and desirable work into two sections: (a) Structural works, needed to put the whole building into a thorough state of repair, and as far as possible to arrest the progress of decay which is now going on with ever increasing rapidity; (b) works which have for their object the permanent improvement of the interior of the building, regarded as a place of worship to be constantly used by the parishioners, not only for the regular services of the church, but for private prayer. The Vicar was empowered to apply at once to Sir A. Blomfield for his estimate for the restoration of the roof of the church, it being unanimously decided to undertake the work section by section.

CITY WORKS.

MR. D. J. ROSS, the City Engineer, has issued a report, in which he indicates the works and improvements which have been executed in the City during the past year. The business transacted by the Commissioners under the London Building Act, 1894, was extensive. The report contains a lengthy reference to a number of street improvements which have been carried out. Some idea of the magnitude of the improvement business conducted by the late Commission of Sewers may be gathered from the fact that claims amounting in the aggregate to about £241,000 were negotiated during the year. The amount these claims were settled for was about £185,500, whilst surplus lands and other property to the value of £34,175 were also disposed of. The amounts charged for water supplies were as follows:—For urinals, £1986 18s. 6d.; flushing sewers, £51 8s. 9d.; street watering, £698 3s. 11d.; washing surfaces of courts and carriageways, £961 2s. 7d.; drinking fountains, £81 14s. 10d.; and City mortuary, £7 2s. 6d.; making a total of £3786 11s. 1d.

BENEATH THE CITY STREETS, now under the control of the Corporation, there exist at the present time about 2360 yards, or nearly one and a third miles of

subway. The lengths of gas, water, and hydraulic mains, telegraph and pneumatic tubes, and electric lighting conduits laid in these subways amount to a total of 7½ miles. The electric light and telegraph conduits contain about 424 miles of wires and cables. The importance of the work of cleansing and watering the streets and removing the trade refuse within the City may be realised when it is understood that over a million people and nearly a hundred thousand carriages enter and leave the City daily, and that out of that number more than three hundred thousand persons pass the day within the City. The quantity of water used during the year for

WASHING THE STREETS AND COURTS

was about 26,329,666 gallons, the number of nights when it was used being about 261. The quantity of refuse removed during the year, according to the returns of the Superintendent of Street Cleansing, amounted to 43,725 van loads taken from premises, and 30,065 loads of sweepings off public ways, making a total of 73,790 loads, which is at the rate of 1419 per week, or about 237 per day during six days of the week, there being no removal of dust or sweeping of the thoroughfares on Sundays. The destructor apparatus at Lett's Wharf was in constant operation both day and night throughout the year, with the exception of a stoppage of 23½ days for repairs and cleaning flues.

GLASS HOUSES

A NEW DÉPARTURE IN BUILDING.

SOME few years ago Dr. Van Heyden, of Japan, experimented with hollow glass blocks, or bricks, of which he had a small house built; but this proved a failure, partly because the windows and doors were similar to those in ordinary buildings, and the glass bricks contained enclosed air, and partly because various requisites of a healthy dwelling were not provided. A primary essential of a house is light, but, generally speaking, light of a sufficient amount is accompanied in hot climates by a superfluous degree of warmth. Dr. Van Heyden used in the construction of his novel dwelling-house hollow boxes made of glass, which could be filled with a solution of alum, and made both air and watertight. These boxes, says the Health News, were made a little over a yard broad, and about 24in. high, by fixing glass panes, one-third of an inch thick, in an iron frame, and then screwing them together. The interstices between the rows of boxes were filled with felt, covered with thin boards; the flat roof permitted a similar arrangement. Dr. Van Heyden thinks that, for different reasons, the glass boxes might be of larger dimensions, the panes with which they are formed being proportionately thicker, in order the better to stand the pressure of the fluid contained in them. The boxes successfully resisted the influence of heat and cold, as well as shocks of earthquake.

NO DOORS REQUIRED.

It will be seen that a house built in this fashion, without doors or windows, is practically a large hollow box. The panes being of rough plate glass, persons outside cannot see into the interior, though light is freely admitted on every side; while people in the house can readily look out upon external objects by substituting polished glass for the rough panes at suitable positions, so as to form windows. As regards ordinary doors, they were not requisite, as Dr. Van Heyden made the entrances by a staircase and lift leading from a room sunk below the house. This room is lighted through four glass boxes let into the corners of the floor of the sunlit apartment situated above it. This floor is made of a double set of planks, with a thick layer of sawdust interposed between the two sets of planks; the upper set is painted and varnished to form the floor of the living room, while the lower, whitewashed, is a suitable ceiling for the sunken room. At night the rooms are illuminated by electric lamps, which give off heat, and do not vitiate the air as gas would do.

SOME OF THE ADVANTAGES.

Dr. Van Heyden does not forget to take into consideration that in winter the solution in the glass boxes might freeze, even in Japan, and that it would be certain to do so if such a house were built in a colder country. To provide against this contingency the whole building is surrounded by a covering of common window-glass set in wooden frames; the house is thus enveloped in air, which is a bad conductor of heat; while the air space can be readily warmed, if necessary. Ventilation is arranged for in a simple manner by carrying the iron pillars somewhat higher than the walls of the rooms, leaving a space corresponding with what is usually called the moulding. This free space opens into a groove covered with ordinary window glass, and running round part of the building; from it a tube conveys the air away from the house. One advantage derived from living in such a dwelling is of no small importance in hot climates during summer—namely, perfect freedom from mosquitoes and other tormenting insects which easily obtain an entrance into an ordinary house through the doorways and windows. Dr. Van Heyden is not so blind an enthusiast as to expect his example to be universally followed, but he has, at any rate, the satisfaction and credit of directing the attention, not only of the Japanese, but of the inhabitants of other countries, to the feasibility of using other materials in house construction than those commonly employed.



At the back
of the Church

SKETCHED BY F. HAMILTON JACKSON.

VIEWSLEY CHURCH.

BY A SPECIAL CORRESPONDENT.

THE original church at Yiewsley was a small building designed by the late Sir Gilbert Scott, and consisted of a nave and an apsidal chancel, to which had been added organ and choir vestries. Built mainly of brickwork, it was of simple design and homely proportions. For some time past the enlargement of the church has been contemplated, and the committee which was formed to carry out the project consulted Messrs. C. A. Nicholson and H. C. Corlette, of London, as to the best means of dealing with the problem before them. The scheme proposed by the architects, which has now been carried out under their superintendence, was the conversion of the old nave and chancel into a north aisle and chapel, and the addition of a large new nave and chancel on the south side of the old church. It was felt that this plan would leave the original building as nearly as possible intact, and that the new work could be planned on a scale sufficiently large to form a nucleus of still further additions, should they ever become necessary. The style of the new work is in harmony with that of the old church, but variations have been introduced into the details, and the new and old portions are left to tell their own tale.

THE NEW NAVE

25ft. wide and of suitable height, with massive arcades of Ham Hill stone, and provision has been made for a future south aisle. The windows are large with substantial stone mullions and tracing, and are glazed with leaded lights. The walls are built of brickwork and plastered internally, and the roof, which is tiled, has barrel ceiling of timber. The base of the tower, in which the organ is placed, has been built on the south side of the chancel; and at the south-west corner of the nave is a porch vaulted in brickwork, the gift of the children of the parish. Over its entrance is a figure of Our Saviour on the Cross, carved by Mr. E. Lynn Jenkins, of Chelsea, and above the east window of the chancel is a canopied stone niche, in which is placed another figure of Our Saviour, carved, and in an attitude of benediction, the work of the same sculptor. The general effect aimed at in the interior has been that of airiness and brightness. The chancel is wide and open, the passages are broad, and, while the general design is simple, a good deal of richness has been introduced into the details of some of the fittings. The ceilings are painted in bright colours, and the hangings and carpets are of soft and warm-looking materials. The general contractors of the new work have been Messrs. Fassnidge and Son, of Uxbridge, who built the old church some thirty years ago. Their work has been admirably carried out under the supervision of their able foreman, Mr. Arnold, and, besides the general works, Messrs. Fassnidge have made the walnut altar fittings. The carved oak panel over the entrance doors, a conventional "Tree of Life," is the work of Mr. H. Read, of Exeter, who also made and carved the oak and walnut altar with its Hopton stone Mensa, and who has in hand an elaborately carved oak pulpit, the gift of Mrs. E. White. The oak stalls of the old church have been adapted to the new chancel. The gas fittings are by Messrs. Hulett and Co., of High Holborn, W.C.; and the glazing is by Mr. William Smith, of Balcombe Street, N.W. With the exception of the altar cross and candlesticks, which have been designed and made by Mr. H. Wilson, of Kensington, the whole of

THE NEW DECORATIONS,

hangings, embroideries, and fittings in the church have been carried out from the designs of the architects. The bronze processional cross was made by Barkentin and Krall, of Regent Street. The painting of the nave roof has been done by Mr. A. Harper, under the superintendence and with the assistance of the architects, from their full-sized cartoons. It consists of boldly treated and widely conventionalised flower designs, painted in bright

colours on a white ground, and representing the vine, rose, passion flower, and pomegranate, and the fig and thistle when completed, between which are shields in wreaths of roses and vine leaves charged with sacred emblems, the arms of the diocese and the province, and the Royal arms. The decorations of the chancel roof, mainly executed by the architects themselves, consist of bold friezes of lilies and brambles upon the wall plate on each side, on the central portion of the ceiling appearing a representation of the firmament, with the sun, moon, and stars, the whole on a vermilion ground, and on a ribbon above the lily frieze are painted the words of the "Sanctus" from the Communion Office. The walls and roof of the old nave have been cleaned and coloured; the old chancel has been left for the present. A new heating apparatus has been satisfactorily carried out by Mr. A. Hewens, of Hayes. The cost of the whole work has been between three and four thousand pounds.

THE GREAT NILE DAM.

THE great dam which Sir Benjamin Baker and the firm of Aird are going to construct across the Nile just below the Temples of Philæ, will be the first great engineering work to be completed in the twentieth century. Its value to Egypt commercially can hardly be estimated; its effect and the dimensions of the great reservoir which it will create are difficult to realise. The colossal character of the dam will be apparent when it is stated that the flood discharge of a river a mile wide and 30ft. deep will be discharged through its sluices. At times the river will be dammed back to a height of about 66ft. above its present level, and for a distance of 144 miles above the dam—the effect will be, in fact, that of a lake 144 miles in length—as far as from London to the Bristol Channel—the quantity of water impounded will be more than 1,000,000,000 tons. At some periods of the year 900,000 tons a minute will gush

THROUGH THE DAM'S SLUICES.

The dam will be of masonry, and of sufficient height to be always above the water level. It will be built over the partially submerged chain of islands at Assouan—the First Cataract of the Nile—and a carriage road will be driven from bank to bank over its mile width. Its height above the lower level of the water will be 106 metres, and the traffic of the river will be provided for by a chain of locks, in number six or seven. In connection with the great dam and reservoir at Assouan the Nile will be dammed at two other points, namely, at Assiout, 330 miles lower down the river, and at another point still another 230 miles down, and near Cairo. These subsidiary dams will enable the stored-up water to be thrown into the existing canals at a sufficiently high level to irrigate the lands. The immediate effect of these new provisions for irrigation will be, according to Mr. Willcocks, the engineer to the Egyptian Government, to bring another 600,000 acres of land in Egypt into cultivation. But the far more important effect will be that of converting the present cultivated area of 5,000,000 acres into land of the first efficiency in crop producing qualities, and of putting certain districts and levels beyond the reach of the vicissitudes of flood and of drought. After the detail drawings of the dam at Assouan had been proceeded with, in conjunction with Sir Benjamin Baker, he was instructed to obtain

TENDERS FROM THE LEADING CONTRACTORS,

and so to arrange the charges for work done that the Egyptian Government should only have to make payments when the works were in operation, and the profits derivable therefrom were large enough to cover the annual charges. This was a novel arrangement, but the contractors and financiers responded readily to the appeal, and finally the tender of Messrs. John Aird and Co., the most favourable received, was accepted. The amount of their tender was practically identical with that of the estimates made by Sir William Garstin

and Sir Benjamin Baker. The first estimate of the cost of the dam itself at Assouan was nearly £2,000,000. In another aspect the dam at Assouan has a curious history. The site of it has only been arrived at by a process of exhaustion after considering every other possible scheme for some 600 miles of the Nile's length. When the plans were drawn up four years ago it was suggested that the height of the dam should be 118 metres instead of 106 metres; and it was believed that such a dam and reservoir would have the effect of submerging the temples on the Island of Philæ, about a mile above the dam. The recommendation of Sir Benjamin Baker that the temples should be raised did not meet with any great approval, but his observation to the effect that no other scheme would do, and no other site could be found, had more weight. Several

OTHER PLANS

had been suggested: a dam at Kalabasha, some thirty miles above Philæ; another at the Silsila Gate, fifty miles on the other side, down stream; a dam, called the Upper Level Assouan Dam, just above the temples; and, most imposing of all, the Wadi Rayyan reservoir—Wadi Rayyan being a deep depression in the desert some eighty-seven miles from Cairo, which it was proposed to flood. But, apart from the difficulties of constructing a canal from the Nile to the great 300 square mile reservoir of Wadi Rayyan, this project would only have watered Lower Egypt. The other schemes were all much more expensive, and would have presented enormously greater engineering difficulties—Silsila because of the sandstone formation of the rock, Kalabasha because of the depth and the width of the river. At Assouan, so far as strength and economy of foundations are concerned, the site leaves nothing to be desired. The rock throughout is hard, compact granite or quartz diorite, and the section of the river is so wide and shallow that the foundations can be put in dry. The under-sluices will be built over the water surface in summer and winter, and, consequently, open to annual inspection—a most important advantage where so many interests depend upon the stability and endurance of the work.

The foundation stone has been laid of the new Church of St. Oswald's, Fulham.

LINCOLN CATHEDRAL is to have a new organ fitted with an electric blowing apparatus.

The foundation stone of a new mission church at Sandford Hill, Longton, has been laid.

The foundation stone has been laid of a new Catholic church at Thornton, near Fleetwood.

Two memorial windows have been placed in St. Paul's Episcopal Church, York Place, Edinburgh. The artists of both windows are Messrs. A. Ballantine and Gardiner.

A SPECIAL vestry has been held at Liskeard to consider the plans of the proposed new tower of the parish church, as amended to meet the views of the Chancellor of the diocese, and to determine whether a fresh petition to the Chancellor for a faculty should be sent.—Mr. J. Sansom, architect, produced the plans, which, he said, were practically the same as the original design. The tower had been somewhat shortened, and instead of pinnacles there were battlements with corner turrets. He had reason to believe the plans would be accepted by the Chancellor.—Mr. S. Bone, hon. secretary, reported that the Tower Committee unanimously recommended the adoption of the new design.—Mr. C. M. Olver moved that the original design be adhered to, but there was no seconder.—After some discussion, it was resolved, on the motion of Mr. J. Bone, seconded by Mr. H. Wills, "That the report of the committee for rebuilding the tower with the provision of a choir vestry, be adopted, and the vicar and churchwardens be authorised to apply to the diocesan authorities for the necessary faculty for taking down the remaining portions of the present tower, and for the erection of a new tower according to the plans now before the vestry."—The new tower will be 80ft. high, and will cost not less than £3000.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
May 4th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slabs; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Queen's cottage at Kew is to have a new roof put on—an act of vandalism which will quite take away its picturesque appearance, as the present old thatched roof, with its masses of ivy and creepers and delicious mossy tints, is charming. The interior will also prove uninteresting, as the quaint old bamboo furniture, Hogarth engravings, and the blue and white Wedgwood china is to be removed, and added to the already over-filled stores at Windsor Castle.

PRESIDENT MCKINLEY has just had an apartment at White House fitted up as a smoking room. It has been arranged in the Flemish style of the seventeenth century. The wood-work is of dark oak, which gains a rich tone by being waxed. The walls are panelled 7ft. high, and above the wainscoting they are hung with an olive-green damask paper surmounted by a frieze of Flemish tapestry. The ceiling is divided into panels by oaken beams, and each panel is filled in with dull gold. A Netherlandish fireplace with a hood is filled with olive-green tiles, and the "gar-niture de feu" is of wrought-iron. The antique cabinet, in which the President keeps his favourite smoking mixture, the table and chairs, are all of the same period.

THE municipal authorities at Glasgow are not only building an Art gallery which will, when completed, be one of the finest in the country, but they are constantly giving evidence of their anxiety to surround themselves with the best work they can get by the men who are to-day in the front rank. The Corporation has just commissioned Mr. Lavery, Mr. E. A. Walton, and Mr. Alexander Roche to paint three panels, and Mr. George Henry to fill a large lunette, above the platform in the banqueting-hall of the Glasgow Municipal Buildings. The artists selected are prominent representatives of the Scotch school, and are all either Academicians or Associates of the Royal Scottish Academy.

IN connection with the Royal Academy exhibition opened on Monday there is a rumour afloat that another "rejected" exhibition may be organised, this time at the Imperial Institute. The number of pictures rejected is somewhat larger this year. Want of space is no longer a polite fiction intended to cause the rejected to feel that they are not despised as well. With a mass of material sufficient in bulk to furnish forth five or six exhibitions of the Royal Academy size, the Hanging Committee must often be compelled to refuse much that they would otherwise hang. A large amount of this surplus might very profitably be immediately diverted in the direction of other exhibitions, but the fatal disability of hangers in a "rejected" show is

that, theoretically, they must necessarily hang everything. Under such a condition it is scarcely probable that an exhibition could be an artistic success. Again, the majority of artists who value their professional reputation will rather seek to conceal the fact that their works have not been favourably treated at Burlington House. To transfer their pictures to a "rejected" exhibition would in most cases do them no good, but rather harm, in the public estimation. This important factor narrows down the work sent to a "rejected" gallery to that which would not be accepted anywhere.

SIR WYKE BAYLISS's address at the British Artists, on "Art in London," comes at a very appropriate moment, and so does his apt remark that we suffer the defilement of all our buildings in order that we may have our mutton chops cooked properly. Now that our parks and gardens are putting on their spring clothing it is lamentable to see the amount of unnecessary smoke which is allowed to defile the fresh greenery. Curiously enough, the greatest offenders in this respect are the proprietors of the most recently erected buildings, where one would expect that some improvement in the system of smoke consumption would have been introduced. Two offenders single themselves out by their sins in this respect. One is the huge building at Hyde Park Court, where at any hour of the day volumes of smoke may be seen proceeding from the chimney. The other and worse case is that of a well known hotel at Kensington. It is stated that a request to the Vestry of Westminster is in course of signature amongst the frequenters of the gardens, calling upon them to do their duty, and put a stop to this nuisance.

AN extraordinary feat in church removal will soon be witnessed in London. Hidden away in the quiet recess of Great Ormond Street, Bloomsbury, is an unpretentious building externally, which in reality is one of the most beautiful Roman Catholic churches in the metropolis. The church was associated with the hospital of St. Elizabeth of Hungary, next door, founded by Cardinal Wiseman in 1856. The extension of the Hospital for Sick Children, close by, hampered the authorities of the smaller institution in a scheme of enlargement they had devised, and they accordingly agreed to sell their whole property to the other hospital, and erect a new building for themselves in St. John's Wood. This involved the demolition or removal of the Church of St. John of Jerusalem, and the question, after careful consideration by Cardinal Vaughan, was referred for final decision to the Pope, who has now authorised the church to be taken down stone by stone and re-erected beside the new hospital in the district mentioned. The beautiful altar and magnificent carving which the church contains will be transferred bodily, so that on its new site the building, externally and internally, will have exactly the same appearance as it has at present. Until its reopening in St. John's Wood, the church is now closed.

THE Architectural Association was in its merriest mood on Friday evening. Amid such decorative splendours as the Café Monico in Piccadilly Circus possesses, it held its annual soirée. A smoking concert was the order of the evening, and the occasion was clearly a very popular one. Rarely—never in fact—are the meetings of the Architectural Association so well attended, as was the case last Friday, from which fact we infer that the frivolity latent in the Profession only awaits a fitting opportunity on which to reveal itself in all its sprightliness; it is by no means a missing quantity. The Association got far beyond the problems of the Profession on Friday, thanks to the capital array of vocal talent—for the most part specially imported for the occasion. Thus it was that Architecture was very much in the background, which is not always the case when the Architectural Association takes its amusements. We recollect but two professional allusions throughout the whole evening. The first would, perhaps, shock the suscepti-

bilities of the Profession if related in cold print, though in the fervour of affairs on Friday the indelicate innuendo was received with every manifestation of cordiality. Mr. F. D. Clapham, one of the few members of the Association who appeared on the stage, had a woeful story to relate concerning "Mr. Parker's Picture," and the trouble it brought upon a candid critic. It was a story with a moral, and the moral was, "Always postpone unkind criticism of your friend's work *sine die*." Mr. Clapham, however, offers an easy solution. When a friend asks for an opinion on a picture which is rather out of drawings and the colour "gone wrong," it is kind to say that it is "fine and bold;" or, under easily-imagined and oft-recurring circumstances, it is always safe to say that a picture is "the best thing of its kind." But all this was very inconsiderate on Mr. Clapham's part; it exhumed old memories of the unhappy unhung. In spite of all, however, the occasion was a very happy one, to be copied by other societies throughout the country. The majority of the London members of the Architectural Association were present, and Mr. Hampden W. Pratt was in the chair. The artists were mainly men of repute.

BEFORE the Highgate Bench, Joseph Davis, builder, of Hornsey, has been summoned for breach of bye-laws with respect to a bath-room in a block of flats in the Wightman Road. The case on behalf of the Hornsey District Council was that after the defendant had erected some flats at Hornsey he sandwiched between the kitchen and sitting-room a bath-room which had no window opening to the external air. This was a habitable room, as there was the possibility of its being used for sleeping or other purposes. This was an entirely new point.—On behalf of the defendant, it was said the room was well ventilated. It could not be used for any other purpose than that of a bath-room. If he were to remove the partition the bath would be in the kitchen.—Mr. John Farrer, defendant's architect, said he had superintended buildings in Hornsey for twenty years, and never had a bath-room without a window before, but this was a matter of necessity.—The Bench held that this was not a habitable room, and dismissed the summons, with costs.

THE Barrow County Council, at a recent meeting, discussed a report of the Technical Instruction Committee, which stated: "Read report from Mr. H. Lord on the designs submitted for the New Technical School, and awarding the first place in the competition to the design marked 'Hematite' (No. 1), and the second place to the design marked 'Expert.'" The adoption of the report having been proposed, Mr. Cox asked whether the two plans which had been awarded first and second prizes had complied with all the conditions—even as to outline and colouring—issued by the committee? Then as to cost, was the chairman of opinion that the school could, according to the plans, be built for the stipulated sum, £9000? Mr. Townson said the assessor had stated that the conditions were impossible for anyone to thoroughly comply with. Generally, however, they were complied with. For instance, those in regard to placing a description of the building, to be erected at a cost of £9000, with 10 per cent. for architect's fee, along with the plan, were complied with. As regarding the outlining and colouring, etc., that was left to the architect, and he thought they could not do otherwise than give the prizes to those who the architect said deserved them.—Mr. Cox observed that he was prepared to say that the conditions had not been complied with in detail, and therefore he moved as an amendment to the report that so much of it as referred to the technical school plans be referred back for consideration. Mr. Cox reminded the Council that the surveyor's first estimate of £11,750—£12,750 with additional fees, costs, etc.—had to be cut down to £9000, or £10,000 with incidental expenses. In doing this, he took out from the plans that portion that was intended to be put in the basement in connection with the engineering department. But what did they find now? Architects were

vited to send in competitive plans. This as done, and he supposed each man would declare on his word of honour that he could carry the work out for £9000, with £900 or 1000 for incidentals. But, strange to say, the successful plans included in the work to be done for this £9000 that which the borough surveyor had taken out of his first estimate, because such would cost more than the amount they were prepared to give. So somebody was wrong—either Mr. Fox or the architects who went in the plans. According to the statement of the assessor, the schools could not be built according to the successful plans—which he supposed they would select—for less than £4,000. He ventured to say that in the end the sum would reach nearer £17,000 or £18,000 than £14,000.—Mr. Bell, in replying, pointed out that the assessor said the two persons named were entitled to the prizes, and he (Mr. Bell) thought it would be most unbecoming and undignified, in the face of the assessor's decision, to refer the matter back. On the question of cost, Mr. Bell pointed out that no expenditure would be incurred without the sanction of the Council.—The amendment was rejected, and the report of the committee adopted.

Two alterations will shortly be effected in the Borough which will very considerably alter the appearance of the neighbourhood. The first is the change necessitated by the improvement which is being made at the Elephant and Castle. A great portion of the block of buildings has already disappeared, and the well-known hostel itself is now completely hidden by an ugly hoarding. When the alterations are completed, the easy passage of traffic into the Walworth Road will be much facilitated. The other change imminent is that which the improvement of Long Lane and Tabard Street will involve. Tabard Street (the notorious Kent Street of earlier days) is to be widened and extended, and the narrow outlet by which Long Lane debouches to the Borough at St. George's Church will also be improved. These alterations will involve the disappearance of St. George's Churchyard, while the church itself, which projects into the Borough High Street, and is a perpetual hindrance to traffic, will be isolated, becoming an island surrounded by broad new streets. This scheme, of course, necessitates the demolition of many houses, but it is satisfactory to learn that the new thoroughfares will leave untouched the surviving portions of the old Marshalsea prison. The churchyard will disappear, but it is one of the conditions of the improvement that a new open space of equal size shall be provided in its place.

The acquisition by the London School Board of the two riverside mansions, to be used as Industrial Schools, is a step which has not found much favour with some of the London journals which have made reference to the circumstance. One of the mansions is the old residence of the Earl of Kilmorey, at Richmond, and the other is Lord Lonsdale's house at Barnes, which has been lately used by the Lyric Club. The latter especially is a building of considerable architectural pretensions, and the interior is gorgeously ornamented. The splendour of the surroundings in which they are taught their trades will tend, it is contended by the newspaper critics, to make the little waifs discontented with the comparative squalor attending the scene of their labours when the time comes for them to enter on the battle of life in the big world outside.

There is to be seen at the Imperial Institute a Queensland curiosity just received from that colony in the shape of a piece of a wooden drain pipe, which has been in use for more than fifty years. It was laid down in what is now known as George Street, Brisbane, in the times of the convicts, and is quite sound to this day. Some paving blocks are also at the Institute in the Queensland Court, which have been laid down for the past sixteen years at the junction of Queen and George Streets, Brisbane, where the traffic is very heavy. These blocks (which are only very slightly worn) and pipe were fashioned from the hard

woods of the Queensland forests, so noted for their durability and strength. There are thirty-five miles of streets in London paved with Australian hard woods, and the use of these timbers is increasing so rapidly that the supply cannot keep pace. In March, 1896, a portion of Wellington Street, Strand, was laid with blackbutt, crow's-ash, and tillow wood (all Queensland hard woods) by the Strand Vestry, who are very pleased with their bargain. A visit to the Queensland Court at the Institute will reveal the many beautiful kinds of timbers which the colony possesses for building and furniture purposes.

Those who are led to purchase French furniture, girandoles, candelabra, and clocks, imagining them to be of the time of Louis XV. or XVI., will be interested to hear that at a recent sale in Paris of the effects of the Maison Beurdelay, which occupied several days, the principal makers of old French furniture bought at high prices the models for the bronze work for which these pieces are so notable. A commode by Reissner from the Hamilton sale, which may be given as one instance, fetched 5000fr.; and even a candelabra Venus and Cupid, Louis XVI. style, reached 1500fr.; a Louis XVI. clock, after Carlin, the original at Windsor Castle, 2550fr. How was this copied?

The remarkable movement for the extension of hotel accommodation in London continues. More and bigger hotels are being erected. Even the most fashionable houses are affected, and are re-constructed, enlarged, or re-furnished, to meet the competition of their formidable modern rivals. Claridge's, the most aristocratic hotel in the world, the resort of sovereigns who visit London incognito, is even now emerging from a process of renovation. The Carlton, the new hotel which is uplifting its imposing beauty next door to Mr. Tree's handsome theatre, the new Her Majesty's on the site of the old Her Majesty's, is also approaching completion. The Carlton will have between 300 and 400 bedrooms. Its reception rooms will be smaller but more numerous than usual in the modern big hotel. How luxurious are the ideas of its promoters may be gathered from the fact that the contract for furnishing, just concluded with Messrs. Waring and Gillow, is for £150,000. Another West End development is that of the Bath Hotel, in Piccadilly, which has annexed Walsingham House, and is now completing the union of the two houses into one. There are two new hotels approaching completion, each having 500 bedrooms, namely, the big hotel in Russell Square and the Great Central, which, as its name implies, is to be the hotel for the new railway from Sheffield to London. The most ambitious project of all is for a new hotel, which is to exceed in size the biggest of the gigantic hotels on the Embankment. The site spoken of for this immense hotel is the Adelphi, and if the project be carried out the Savage Club will be one of the houses to be taken for the site.

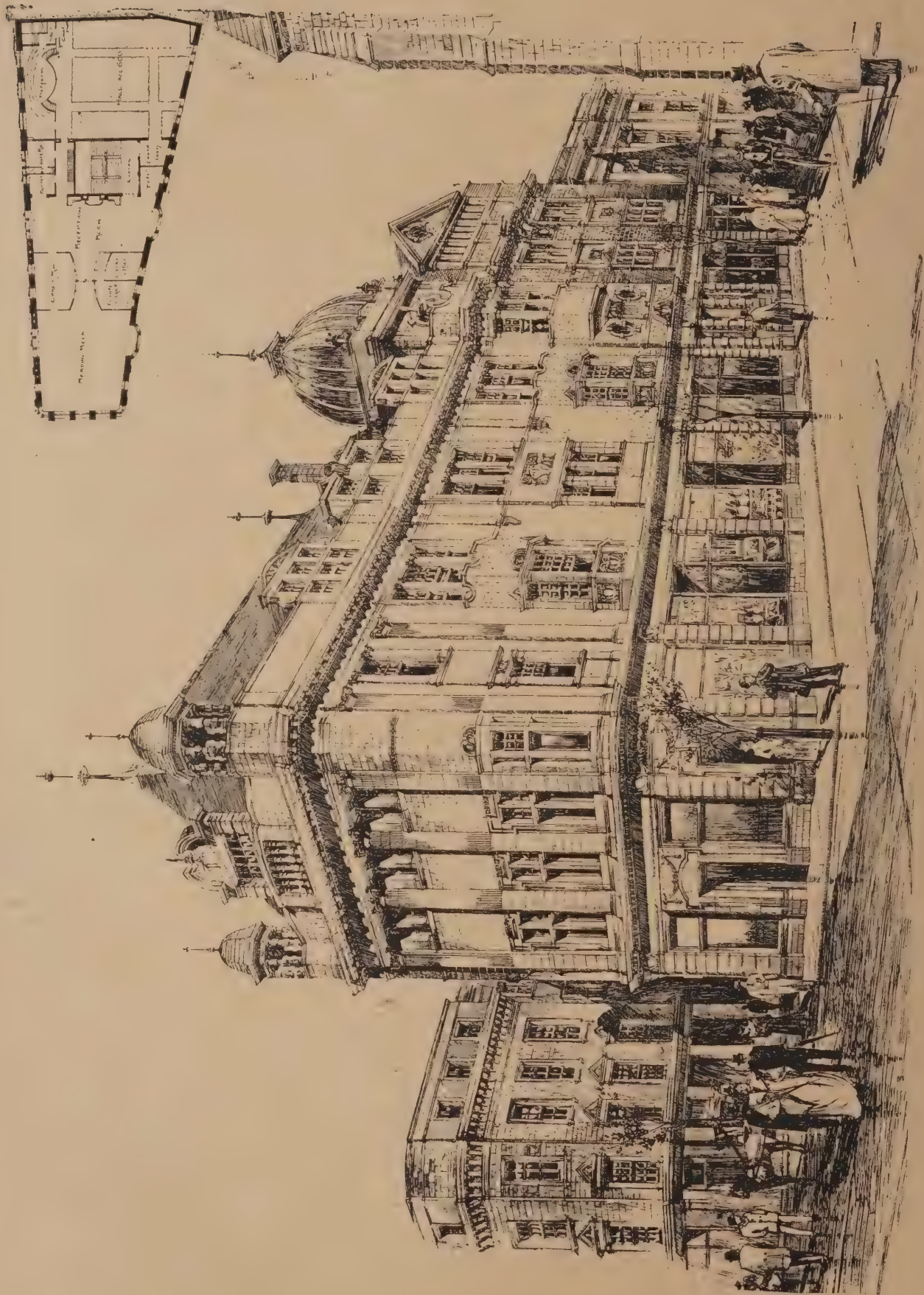
It is stated that £10,000 has been guaranteed and subscribed towards the restoration fund of Paisley Abbey. The total aimed at for restoration is £40,000, apart from outside improvement. Dr. Rowand Anderson, who carried out the restoration of Dunblane Cathedral, has been employed as architect, and with his assistants has been conducting excavations to determine the stability of the foundations throughout the choir and the four piers which carry the central tower. These were all found to be in a most satisfactory condition. It is pointed out that there will be no disturbance of graves in the restoration operations in the choir and transepts. The churchyard books show no interments in the large majority of the lairs for fifty years or longer, and in the case of four graves disturbed within twenty years, it was shown that they would not be in the line of excavation work.

SOME exceptionally choice and valuable engravings, comprising fancy subjects, after masters of the English school, have been disposed of at Messrs. Sotheby's auction rooms

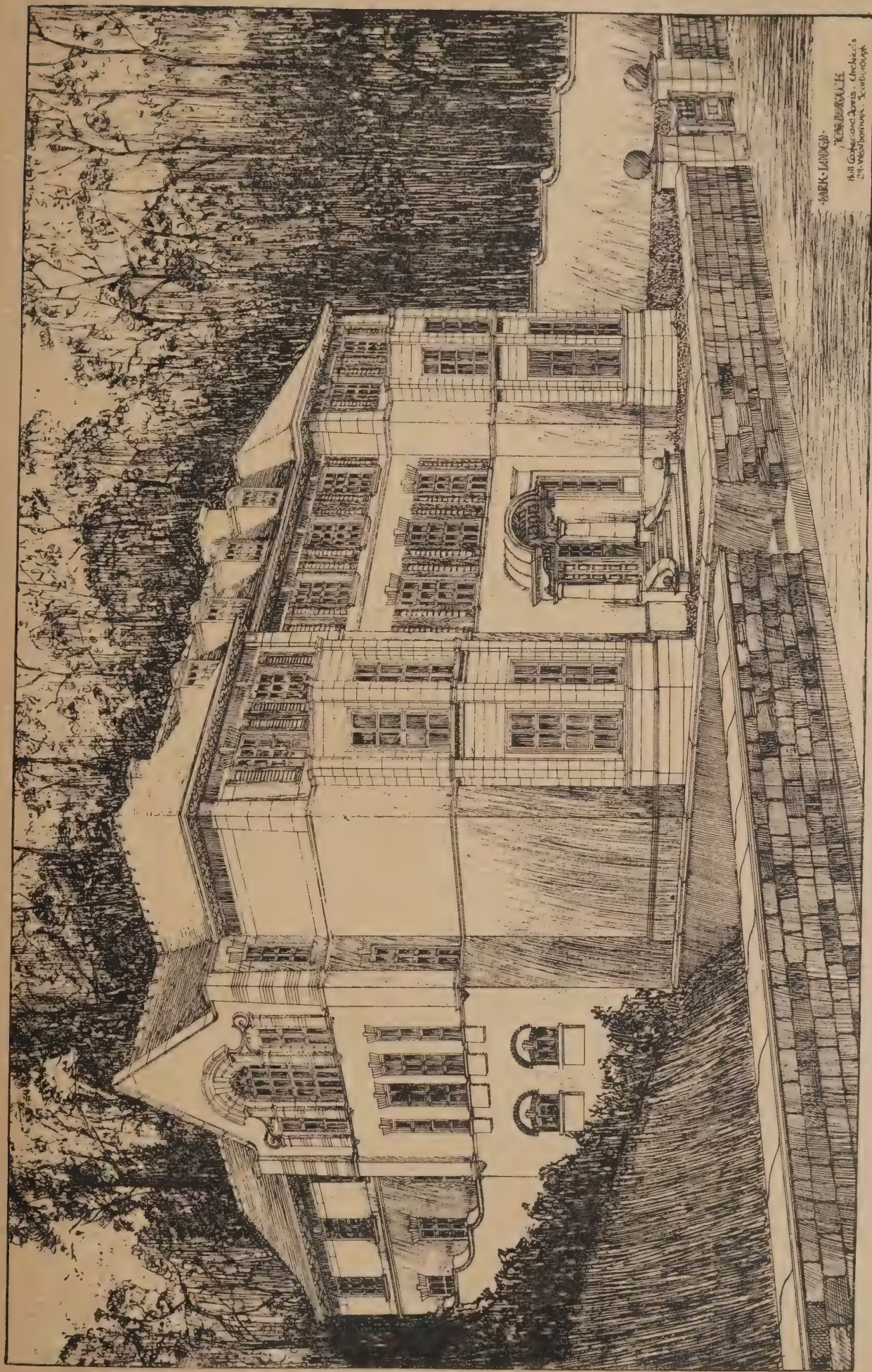
in Wellington Street, Strand. "The Daughters of Sir Thomas Frankland," after J. Hoppner, R.A., by W. Ward, fine impression with margin, sold for £97 13s.; "Mrs. Curtis," after H. Walton, beautiful proof, before the inscription space was cleared, was knocked down for £90; "Lady Rushout and Children," after D. Gardner, superb proof, first state before it was altered to an oval, published January 1st, 1778, £81; and "Lady Compton," after Sir Joshua Reynolds, by Valentine Green, old impression, inscription space cut, £80. The 184 items realised £1136 9s. 6d.

AFTER having given their attention for a year or two to ceramic art, the Burlington Fine Arts Club have this season returned to their critical studies of Italian painting. The school which has been selected is that of Lombardy. It is represented by 75 pictures, of which about 40 have never, it is stated, been exhibited before. The Committee are not entirely satisfied. They regret the absence of two very important works, which are housed in Scottish mansions—the "Solario" at Rossie Priory, and the "Sodoma" at Gosforth House. They have failed to obtain other fine examples which they applied for, yet the collection as presented is rich enough to repay much study. The place of honour is given to Solario, who has been described as the greatest colourist of the school. His picture is a beautiful representation of the Annunciation. The Virgin is kneeling at a table, robed in blue and red; behind her is a large canopied couch, hung with green curtains, on the left is the angel, seen in profile, draped in light blue and red; and through a window a landscape is seen, itself an entrancing picture, lovely in its pure colours. Luini was another of the delicate colourists of the later period, and he, too, is well represented—perhaps best in the lovely Virgin, lent by Mr. Ludwig Mond.

In the House of Commons recently, in connection with the consideration in committee of the London Building Act (1894) Amendment Bill, the adjourned debate on the question, "That it be an instruction to the Committee to take into consideration whether the offices and buildings of the Stock Exchange shall be exempted from the operations of Parts VI. and VII. of the principal Act," was resumed.—Mr. Pickersgill said that the statement that the London County Council did not object to this instruction was misleading. Neither the County Council nor its Parliamentary Committee had had the instruction under consideration. The members of the Stock Exchange desired to have their offices and buildings excepted from Parts VI. and VII. of the principal Act. The main object of Part VI. was to lay down in regard to the construction of buildings certain conditions which were for the general advantage; and to exempt the Stock Exchange would be most unfair. If the Stock Exchange had a *locus* before the Committee, they could submit their case; and, if they had not, why should the House of Commons specially interfere on their behalf? One section (75) of the principal Act might press hardly on the Stock Exchange. That body wished to make certain extensions of their premises; and section 75 prohibited buildings from exceeding certain dimensions without having party-walls. The power of exemption which was given to the London County Council was limited in a manner that would exclude the Stock Exchange; and, therefore, as a compromise, he should move to leave out from the instruction the words "Parts VI. and VII." and substitute the words "Section 75."—Mr. Brigg seconded the amendment.—Mr. Cohen said that, while it was true that the County Council had not assented to the instruction, approval had been notified by the special members of the Parliamentary Committee to whom the question had been referred by the whole committee. The Stock Exchange did not claim to be exempted from the general law by this instruction; they only asked that the Committee on the Bill might consider whether they were entitled to this exemption.—On a division the instruction was approved.



PROPOSED PREMISES Y.M.C.A. NEWCASTLE-ON-TYNE.
Design by Armstrong & Knowles Newcastle-on-Tyne



PARK LODGE, SCARBOROUGH. MESSRS. HALL, COOPER, AND DAVIS, ARCHITECTS.

At Bath County Court an action was brought by Major C. E. Davis, the city architect, against the Corporation of the City of Bath, to recover certain payments for work done by him on behalf of the Corporation. The Corporation relied on two agreements made between themselves and a Mrs. Joyce, contending that she was liable to indemnify them against the claim. The Corporation admitted Major Davis's claim, and therefore the fight was really between the Corporation and the third party; £45 was the amount of the claim, and it was for professional charges in connection with the rebuilding of a restaurant. Long negotiations took place, during which two agreements were executed, in which Mrs. Joyce agreed to pay Mr. Davis's "reasonable charges." It was upon this that the question hung.—Defendant had paid £15 15s. into court.—His Honour, in giving judgment for her beyond the money in court, with costs, allowed ten guineas for perusing plans, for which £27 was charged; five guineas for the elevation and detailed drawings, and nothing for passing works on completion.

MR. S. GOETZE has offered to paint frescoes for three panels at the back of the altar in the Church of St. Botolph, Aldersgate. The subject of the middle panel will be the "Entombment of our Lord." The wing panels will contain figures emblematical of the phrase, "Watch and Pray." Only the central painting is at present complete, so that some time must elapse before the alterations in the appearance of the east end of the church can take place.

CHANTILLY CHATEAU has been opened to the public in accordance with the terms of the bequest made to the nation by the late Duc d'Aumale. Chantilly Chateau consists of two buildings, the older and smaller of sixteenth century construction, and the new one erected after the plans of M. Doumet. Visitors are interested in the Court of Honour with Guerin's marble group to the memory of Louis Quatorze, an excellent collection of wood carvings, the artistic ironwork, &c., the books and pictures.

ARRANGEMENTS have been made for holding at the South London Art Gallery (Lord Leighton Memorial), Peckham Road, S.E., a series of special collections, of which the first, now open, is a collection of Japanese colour prints. The ordinary collection is, in a sense, "permanent," though, as the pictures shown are mostly lent, they are continually changing. It is thus quite distinct from the short loan exhibitions held in various parts of London at this time. In addition to the picture gallery, there is a museum filled with technical objects of artistic interest.

THE National Gallery in Dublin is to be enlarged. The estimated cost is about £20,000, though the Treasury have provided only £2000 for a start. The enlargement is rendered necessary in order to house the collection of pictures which has been presented to the gallery by the Countess of Milltown. The collection includes 150 pictures, some of which are very fine, there being several examples of the French school. Even without the Milltown collection, the National Gallery is far too small.

At the last meeting of the Metropolitan Asylums Board Mr. John Lobb moved, "That, having regard to the fact that the total amount paid by the Managers to architects and quantity surveyors during the four years ended at Lady Day, 1897, was £63,683 9s. 7d., the question of the appointment of an architect to the Board be referred to the General Purposes Committee for consideration and report." He remarked that he would not alarm the Managers by giving them the sum which had been spent in that direction during the last ten years. During the last four years, however, five architects had received £51,108 5s. 8d., and eight £1098 18s. The Board, he said, required the services of a good architect to advise them in committee, and he believed that if one was appointed a great saving would be effected. He did not attach

any blame to the architects who had served the Board, as it was their business to make a good bargain with a public body. He would have done the same had he been in their places, and perhaps obtained more; and he considered that the Managers had been very remiss in not dealing with so important a question earlier. Other public bodies possessed their own architect, and he failed to see why the Metropolitan Asylums Board should not have their own also. He realised, of course, that one man could not do all the work, but he could render valuable assistance in respect to tenders and the erection of buildings.—Mr. Purchase, in seconding the motion, said at one of the hospitals the architect ignored both the committee and the Board, and incurred an expenditure amounting to £38,000 without consulting either one or the other. Such a thing would have been impossible if the Managers had had an architect of their own.—The motion was lost on the Chairman's casting vote.

A STAINED-GLASS WINDOW has recently been fixed in St. James' Church, Handsworth. The window consists of three lights and tracery filled with stained and painted glass. The subjects chosen are from the family history of the home beloved by Mary, Martha and Lazarus. The principal subject is the "Raising of Lazarus." The subjects are placed under canopies of a light treatment, and the colour is confined to the background and subjects except the golden enrichment of the ornamental parts of the canopy. The robes of most of the figures are richly diapered and the drawing and colouring are admirable. The window was designed and executed by Mr. T. W. Camm, of Smethwick.

THE middle span of the temporary bridge at Vauxhall has been successfully floated into position. It was an extremely neat piece of engineering work, and was accomplished without the slightest hitch of any kind. About forty minutes before high water at Vauxhall, the centre span, which had been lying above Lambeth Bridge for some days upon a big barge-like craft, was tugged up stream until it lay like the top of the letter T at right angles to the southern arm of the bridge, and here it was kept by tugs until the fast-running flood tide ceased to flow. Then on the top of the flood it was swung broadside on to the stream and hauled and pulled until its huge bulk lay just in position between the two arms of the bridge on either side of it. Then, when it had been quickly secured in its proper position, the engineer on board the floating foundation gave the signal, and the workmen, by means of hydraulic jacks, raised it so that the beams upon which it had rested could be knocked away, and its weight should become wholly dependent upon the supports prepared for it on the completed arms of the bridge. It was all done in ten minutes, and twenty minutes after high water the span was resting in position and the ferry boat which had supported it was being floated away on the ebb.

THE Council of the Church House are appealing for funds towards the erection of the second section of the building. The great hall is finished and in use. Suitable accommodation has been provided for the meetings of the Houses of Convocation. Larger and better rooms will hereafter be erected, in accordance with the original scheme. On the west side of the permanent building the chief room will be the permanent meeting place of the House of Laymen. This room will be capable of seating about 300 people. In addition to this the west side will contain nineteen rooms, to be used for letting as offices to church societies. The cost of the erection of this west side is estimated at £18,000.

THE Corporation of the City of London is still waiting to know if the Government will give its consent to the rebuilding of the present Old Bailey Sessions House. The Sessions House is a structure standing quite apart from Newgate Prison, which in a general way is understood to have been transferred from the jurisdiction of the Corporation to that of the

Crown by the Prisons Act of 1877. The presumption is that the Corporation requires the Newgate Street end of the prison on which to rebuild, and hence the consent of the Government has to be obtained. What shape the proposed new building will take, and whether all or part of the prison will disappear to make room for it, cannot just now be stated, for at present only a sketch plan of it has been prepared. The consideration of the matter concerning which the City Lands Committee approached the Home Secretary is, it seems, as a matter of form, within the province of the Prisons or Criminal Department of the Home Office.

THE building known as Abbey Mansions, in Orchard Street, Westminster, a portion of which was wrecked recently by the falling in of the concrete roof, was erected for Her Majesty's Office of Works, by whom it had been leased for twenty-one years for use by the Civil Service Commission as offices. It is a building of nine floors and about 300 rooms, and was erected by Mr. W. R. Rickard, contractor, of City Road, at a cost of £95,000, from the designs of Mr. C. J. C. Pawley, architect, of 2, Princes Mansions, Victoria Street. There were, however, a number of sub-contractors. Quite recently that portion of the building which has collapsed was certified by the district surveyor as "completed" for rating purposes. The construction of this portion had been delayed owing to a question of ancient lights raised by the owners of the Catholic Apostolic Church in the rear, and it is said that the work had been somewhat hurried in consequence.

At a sitting of the Norwich Consistory Court, Mr. J. Overbury applied, on behalf of the vicar of Ilketshall and the churchwardens, for a faculty to completely restore the church by rebuilding the roof, raising the walls, building new buttresses, restoring the windows, replacing the floor, erecting an oak screen, repairing the tower, and carrying out other alterations and improvements at a total cost of £1351.—The Chancellor said he would consider the matter in Chambers.—Mr. Overbury also applied for a faculty on behalf of the vicar of St. Mary's, Framden, and the churchwardens, to erect a lych gate at a cost of £25, to re-roof the nave of the church, remove two misereres from their present position in the nave to within the altar rails, remove the reading desk from beneath the pulpit to the south side of the chancel rail, strip the chancel roof of the false plaster ceiling, expose the wood roof and re-board same, and relay the brick floor of the chancel.—The Chancellor thought it a pity to remove the misereres from their original position, but he supposed those who were on the spot, and had seen the place, knew best. After all, it was a matter of taste. He would deal with the application in Chambers.—The rector of Trinity St. Martin applied for a faculty to remove the old font, erect a new roof of pitch pine, remove a lath and plaster ceiling, remove a deal chancel arch (painted in imitation of marble), and make a new doorway in the tower as a main entrance. The cost would be £340. The chancel arch was erected about eight years ago by the parish carpenter, and was hideous in design and colour.—Citation was issued.

At St. Alban's English Church, Copenhagen the stained glass window subscribed for by British residents in Denmark as a memorial of the sixty years' reign of Queen Victoria has been unveiled. The subject of the window is "The Home in Bethany." The royal monogram is introduced in the cinquefoil, and the royal arms, with the dates 1837 and 1897, are inscribed on scrolls at the foot of the window. Another memorial window, filled with stained glass, was unveiled at the same time. The subject of this window is "Bearing the Cross." A small balance remaining after paying the expenses of the Jubilee window has been utilised for placing a second coloured window in the church porch. The three windows have been designed and executed by Messrs. Heato Butler, and Bayne, of London, under the supervision of Sir Arthur Blomfield, the architect of the church.

Surveying & Sanitary SUPPLEMENT.

MAY 4TH, 1898.

MASONRY.

By JAMES WILDING.

III.—THE SKEW ARCH.

ONE of the most interesting problems in masonry is the development of the face lines of the soffit and extradosal coverings of arches over skew and circular plans.

The example treated here is a skew arch, that is, an arch in this case semi-circular in cross section, supporting a road which is at an acute angle with the going of the arch. As the method used for the unrolling of the soffit is one which applies generally, a special figure is given, Fig. A, to prevent any confusion arising when the more intricate Figs. 1, 2, 3, and 4 are being referred to.

DEVELOPMENT OF THE SOFFIT OF THE SKEW ARCH.—With K I as centre, describe the semi-circle—divide the soffit into six equal parts; any number of parts may be used; the small number is used in this case for convenience, lettered B C D E F G. Produce A K I G indefinitely; under the elevation or the arch place the plan, inclined at 30deg. to A K I C. Drop the divisions A B C D E F G to touch the line K G at the points 0, 1, 2, 3, 4, 5, and the line M G I at 7, 8, 9, 10, 11, 12; these lines are parallel to the line K M. From G, towards the right hand, mark off F E D C B A equal in length to the six divisions into which the soffit of the arch is set off; drop lines from these points square to A K I C:

From K C draw O, A H parallel to line A K I A;
From 1 draw 1, B H parallel to A K I A;
From 2 draw 2, C H parallel to A K I A;
From 3 draw 3, D H parallel to A K I A;
From 4 draw 4, E H parallel to A K I A;
From 5 draw 5, F H parallel to A K I A;

Through the points obtained by these operations trace the line marked "Face Line of Soffit." By inspection of the figure it will be seen that the lower face line of soffit on the development is obtained in a similar manner. If the line G H G I is used as a hinge line, then the soffit development would turn over to the left, and come plumb over the lines K G H and M G I if held in a semi-circular form.

FIG. 1. Draw a semi-circle, underneath this place the plan of the required skew arch, in this case the angle of skew is 30deg.

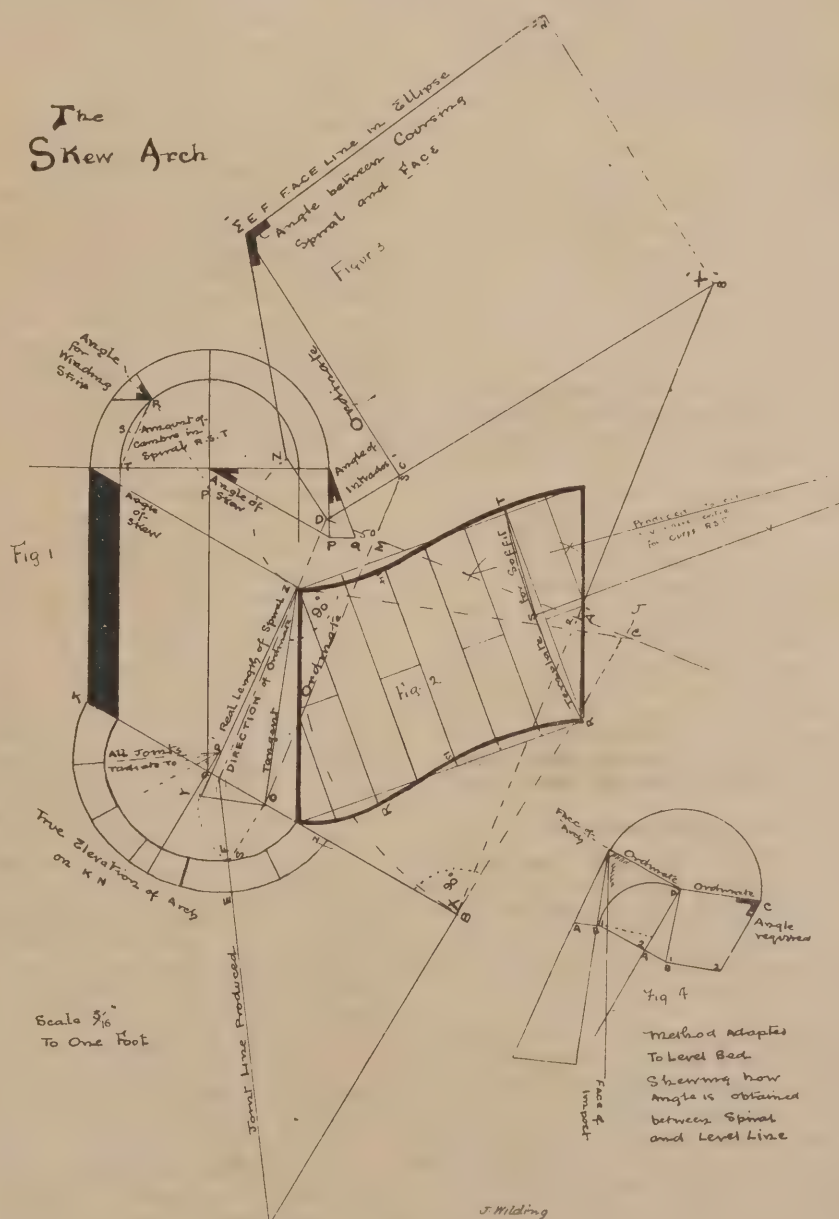
On line K N draw the true elevation of the arch, which is an ellipse. Develop the soffit as illustrated. Draw line H X, and divide it into seven equal parts, square these points to touch the bottom line R R. This gives the plan of soffit. To find the point that all the joints radiate from (this is called the Focal Eccentricity, and was discovered and described first by Mr. Buck) draw a line from the centre used to describe the semi-circle to the outside thickness of the arch, to the point lettered P parallel to angle of skew. From the right-hand side of the arch draw a line parallel to the line 14, 15 on the soffit; from P set up a line square to P 5 and the point Q, where it touches the line drawn parallel to the soffit lines, gives the distance (P Q) of this point below the level line, from which all joints have been found by practice to radiate.

Divide the soffit of the ellipse (see opera-

tion 2) into the seven equal parts, into which you have divided the soffit. Draw all these as joints, using point P as centre, P being the distance, P Q below the level line K N before described. To find the amount of cambre in the line R S T—this must have a hollow in it to fit the centre. The method of finding this amount of cambre is as follows: Take point R up the semi-circle—this point R is same

THE TWISTING RULE is found by drawing the joint line R from P; this gives the angle at one end of the course. From examination of the soffit plan it will be seen that the other end of the bed line starts from the level—the angle at R is the one required to obtain the amount of wind, or twist in each full bed.

TO FIND THE ANGLE BETWEEN THE COURSING SPIRAL AND THE FACE LINE (better known as



vertical height as O S in the elliptical elevation on K N—from R to T draw a chord line, the amount of cambre is shown at S. Now transfer this amount of rise to the line marked template for soffit on plan; having any three points in a curve it is a simple matter to draw the amount of cambre.

that between the face line and the bed line).—The method chosen to explain the two joints that are given as examples is one which enables students to understand the relationship between lines named.

Take the joint line in the True Elevation that is lettered E F; from K N square F to O

connect OZ and the plan of the line YZ is obtained—YZ being the real length of the spiral or bed line RZ. To find the height of the point Y set up a line from O at right angles to OZ, with O as centre and OF as radius, cut off OY equal to OF—connect YZ and the full length referred to is obtained. Produce EF both ways, first to touch the line KN, secondly to A. From the point where it touches KN draw a dotted line through Z, let it be indefinite in length. Produce line KN, and from the point O set off OB equal in length to OZ, from Z draw ZC at right angles to OZ, from B draw BJ at right angles to OB, through this point draw DC square to the line marked *Direction of Ordinate*, from the point O draw the *Ordinate*, parallel to the line marked *direction of ordinate*—continue it indefinitely for the present. From B draw BA1B1 at right angles to DC, from B but square to OB draw AB to meet joint line EF, make A1B1 to equal AB, draw DB1, erect OM B1 2, at right angles to DB1 make ordinate O1M1 equal to ordinate OM, with D

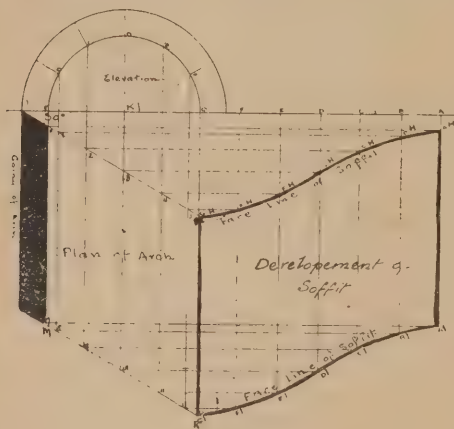


FIG. 5.

as centre, and DZ as radius make D1Z1 equal to DZ, make X1Z1 equal to X2 in plan, connect Z1, M1, and Z1. This gives the required angle between the bed and face lines indicated in Fig. 3.

THE ANGLE BETWEEN THE LEVEL FACE LINE AND THE BED ZR is found by the same method. A careful examination of Fig. 4 will clear any difficulty the student may find.

One great advantage of this method is that the angle obtained on a small scale drawing no larger than the scale figured as the one to which the example should be drawn, may be produced each way until it is large enough for the full-sized mould. Another advantage is, that the angles obtained for one half of the true elevation will work for the corresponding half of the other face, and also by producing the line ZMI the angle for the reverse hand is obtained.

From the elevated site on which Dunninald Castle, Montrose, stands, difficulty has long been experienced in getting an abundant supply of pure water. Some time ago, however, the proprietor, Captain Stansfeld, commissioned the hydraulic engineer, Mr. A. G. Elmslie, Aberdeen, and Mr. Alexander Taylor, plumber, Montrose, to prepare a scheme to supply that want. That scheme has now been completed. The main feature of it is a double-action hydraulic ram supplied by Mr. Elmslie. The power necessary to drive the ram is got from a small stream which forms the march between the estates of Rossie and Dunninald. By utilising that stream at a fall of 13½ ft. on to the ram it lifts close on 3000 gallons per day of pure spring water to a height of 125 ft. above itself at a distance of 1000 yards. On excavating about 100 yards from the ram an ample supply of pure spring water was found, and hence the necessity of lifting it with a double-action machine. The scheme is stated to have proved a perfect success. The necessary works have been carried out by the contractor, Mr. Alexander Taylor, under the superintendence of Mr. Elmslie.

Artesian Bored Tube Wells.*

By MAURICE OCKENDEN, JUN.

(Continued from page xlvii.)

THE first well bored in Alabama, under the washout or hydraulic system, was through 22 various sand strata, mostly running sand, besides layers of clay, and the depth reached was 426 ft., with the same size hole as started, viz., 4 in., water flowing at the surface. This well could not have been bored by the English system without diminishing the size of the hole several times. In this process the main working feature is that, as the tool works, the débris is washed away from the tool, and in cases of sand and soft clays, the hole is almost made with the water pressure. The water is pumped by a force pump (usually of the Worthington type), and forced up into the derrick through the standpipe. This standpipe is fitted with stuffing boxes, through which works a specially turned tube with a few perforations in the centre. Water passing under pressure through the standpipe into the perforated tube down into the borehole through the small outlets each side of the tool, all débris is brought to the surface, as the work proceeds. Tubes are required instead of bars which are of very stout quality. This system

REDUCES THE CONSTANT CLEARING OUT

and shifting of the tools, as only a chisel is required, usually a tee chisel, which requires occasional dressing out by the foreman to keep the size of the hole uniform. At a boring just completed at Crawley, Sussex (as a pioneer hole), a depth of 650 ft. has been reached, through 585 ft. of Wealden clay, which is a very hard substance to penetrate by English bars. Water rises to a level of 6 ft. above the surface. For small works this system is considered expensive, as the time getting underweigh and the carriage of plant is heavy, compared with the English bar plant, for depths up to, say, 250 ft., provided the strata is favourable. At first it might be supposed that this system required a large quantity of water for manipulation, but this is not so, as, by the use of settling tanks, the same water is used again and again. For wells 300 ft. or over, and in southern and midland counties, this system is adopted with good results. The Canadian or American rope drilling system is called the oil-well rig, and is practically the most efficient for large holes in varied or hard rock strata to any depth, also for small diameter holes if over 1000 ft. In the oil fields of Pennsylvania this system is the only method employed, and it is easy to count 100 derricks, or "rigs," as one glances across the hills around Bradford and vicinity. The first oil well drilled was near Titusville, Pennsylvania, in 1859, by Colonel E. L. Drake, the used was 34 ft. high, while the modern is about 80 ft. The leading feature of this process is the employment of a short string of bars, usually about 30 ft. long, carrying a massive chisel. These are suspended by a rope running off derrick and the walking beam. The walking beam, which is worked off a crank, vibrates up and down, giving about thirty strokes per minute (saving the surging of rope, as in the other systems). The derrick is built sufficiently high to swing the string of tools without disconnecting, so that the sand pump can be inserted and withdrawn from the bore-hole without interfering with the boring tool. This is a great saving of time, and being only rope instead of bars or pipe, the tools and débris are quickly brought to the surface. This system is made

IN PORTABLE FORM

for convenience in crossing country where railway connection is not good. This makes a useful machine for prospecting. In the Colonies these machines in portable and traction form are much used. The Diamond system is the most costly, but the most rapid. As a true core or section of the strata passed through is obtained, it is particularly suitable

for prospecting for minerals. It consists of a series of tubes with a diamond cutting trepan head, which is revolved inside of the lining tube, and copiously supplied with water. One great drawback besides the very great cost of tools and working tubes is the quantity of water which is used and wasted in keeping the diamonds clear from débris. The method that is much used in France, Saxony, and other parts of the Continent, is that known as the "Mouton," or ram, especially for penetrating rocks. In Mr. Hughes's "Treatise on Waterworks" it describes the system thus:—"A cylinder of cast-iron, commonly about 8 in. in diameter, and 39 in. in length, weighing from one to three cwt. The upper part of the cylinder is hollowed in a conical form, and the sides are fluted so as to allow the broken débris of the rock to pass up and lodge in the hollow, conical top. The mouton is attached to the rope by means of wrought-iron handles, which are double, in case one should break. The lower part of the mouton is prepared to receive a number of blunt-pointed steel chisels, which are firmly secured to it. There are several ways of giving motion to the rope which works the mouton. One of these is by means of a long plank, placed obliquely about 12 ft. or 15 ft. above the borehole. The mouton is suspended 15 in. or 20 in. from the bottom, and is made to fall through a height of 2 ft. to 3 ft. about twenty-five to thirty times in a minute. The dust or powder resulting from the cutting action of the steel chisels would soon, if not moistened, impede the action of the tool by deadening the blows. It therefore necessitates

THE PROVISION OF WATER,

and then the sort of liquid mud thus formed rises and spouts up through the fluted openings in the mouton, and enters the hollow cone at the top. When it is observed by the workman at the surface that the tool has gone down sufficiently to fill the cone, the mouton is withdrawn, and is then found to be filled commonly with a hard, conical mass, the result of several hours' working." The Chinese are said to have bored successfully with the mouton alone to a depth of 1800 ft. For solid strata throughout this is possible, but if sand, wet clay, and such-like material as requires tubing exists, the mouton is not applicable alone, and is replaced by what the French call "emporte piece," or shell pump, as it is now designated in England. The advantages of an artesian or bored tube well are well known, and since the recent outbreaks of typhoid fever at Worthing, Maidstone, &c., the public have been brought to consider these advantages. Of course, the purity of water from a tube well cannot be guaranteed, any more than the supply from a dug well; but this is certain: water that is obtained from a tube well is free from any possible atmospheric influence, surface drainage, or leakage from cesspits close by, and shutting off supplies of water as the work proceeds, if not considered to be satisfactory. The temperature of water is more even at all seasons; but this is affected by the depth and the stratum from which the water is obtained. In regard to this matter it is very difficult to say with any accuracy

AT WHAT TEMPERATURE THE WATER WILL COME.

For wells up to 600 ft. it is stated to be 52° or 53° Fahrenheit, and increasing about 1° for every 65 ft. after a certain depth. The water in the artesian well at Grenelle, France, which is 1794 ft. deep, has a temperature of 82° or 82½° (according to Sir John Robinson). The heat of the water is undoubtedly influenced by the strata, as the mines in North Wales, although about the same depth as those in Cornwall, are much colder. In cases where running sand yields a good supply of water, if the sand can be kept back, a special brass strainer (which is milled from the inside) leaving the smallest possible opening of the slot on the outside can be inserted below the lining tubes, according to the depth of the sand and water-bearing stratum. This does away with the expense of further boring, or of digging a well deep enough to allow the water to flow up through the borehole into the dug well by gravitation, and then pumping

* A paper read before the Civil and Mechanical Engineers' Society.

from the supply in the dug well. Pumping machinery and pumps vary so much that it is difficult to select a few for this paper. Where water will not rise to within pumping distance from the surface, it is necessary to insert a pump cylinder, which is connected up with gearing and driven by power. Gas and oil engines are used very much now for pumping. For factories and institutions where steam is used a direct-acting steam head can be applied.

WELLS IN LONDON: AT TRAFALGAR SQUARE.

The site of this well is 37½ft. above sea level. The well is 384ft. deep, and consists of an open shaft sunk to depth of 148ft., with a borehole in the bottom 236ft. in depth, making total of 384ft. below the ground surface. The following strata were penetrated:—

Depth from Surface.		Thickness, Feet.
15	Made Earth	15
31	Sand and Gravel	16
169	London Clay	138
197	Mottled Clay	28
207	Sand and Gravel	10
241	Green Sand	34
384	Chalk	143
Total		384

The water now stands about 108ft. below the surface of the ground, and according to Mr. Beardmore, yields 65 cubic feet per minute or more than 580,000 gallons in twenty-four hours.

WELL AT THE BANK OF ENGLAND.

The borehole here reaches to 307ft. below the surface of the ground, the depth of the shaft being 207ft. The water on January 1st, 1852, stood at 61ft. below Trinity high water mark, and on January 1st, 1869, at 74ft., showing the diminution of the water level equal to 13ft. during the seventeen years. In January of each year the water usually stands 10ft. higher than in August, when the level is lower than any other part of the year.

WELL AT CRYSTAL PALACE.

This well is 8½ft. in diameter, and is sunk to a depth of 245ft. At this depth a boring was commenced, fitted with pipes 15in. diameter, 1ft. to 50ft. in length. These were commenced at 4ft. in height, but considerably increased as the work proceeded. At a depth of 259ft. the boring passed through a bed of sand between beds of plastic clay, and from this sand the water rose in the well to a height of 142ft., and filled the headings in eight hours. The boring was continued through the lower tertiary sands till it reached the chalk at 307ft. in depth, and had penetrated the chalk 10ft., thus reaching a depth of 550ft. below the surface. It must be observed that the supply of water in this well is derived from the sand spring at 259ft., and very little addition to this was gained by the deep boring to the chalk. The well was sunk in 1853-5, and no accumulation of sand took place until the year, when it was necessary to take out about 25 cubic yards, leaving still some accumulation which will require early removal. An account was dated 1872. In any system it is always necessary to provide a few buckets or fishing tools in case of breakage of tubes, tools, ropes, bars, &c., but as to the description of same, this depends upon the nature, depth, &c., and nearly every break requires a tool of special construction.

tion. Firing by electricity breaks up the strata to allow a free access for the water. In blasting the oil wells of Pennsylvania it is called firing a torpedo. A cartridge of dynamite, with a detonator, is let down with a light cord to the bottom, and a small monkey, or, as they call it, a "go-devil," is allowed to fall from the mouth of the borehole, which, striking the detonator, produces the required explosion.

Surveying and Sanitary Notes.

A DEPUTATION, consisting of delegates from the riparian parishes on each bank of the Thames, between Richmond and Battersea, has waited upon the Middlesex County Council at the Guildhall, Westminster, to lay before that body a scheme for the erection of a new lock with sluices below Putney Bridge. The scheme was originally drawn up by the Hammersmith Vestry in 1894, and for the last three years has been under the consideration of the local authorities. All these bodies are now practically agreed as to the details, which provide for the erection of a bridge, four locks, and sluices across the river, at a point slightly above the Belmont Candle and Soap Works, between Wandsworth and Battersea Bridges. The scheme, it is said, could be carried out for £220,000. It would have the advantage of providing a direct means of communication between Fulham and Battersea, in addition to the improvement to the water above Wandsworth Bridge.

THE Admiralty has informed the Corporation of Plymouth that in their opinion the scheme for the improvement of Cattewater Harbour, for which the Corporation are seeking Parliamentary powers this Session, would prove prejudicial to the all-important naval interests of the port. As the naval establishment is being greatly enlarged at a vast expense, and the naval traffic of the Sound in future will be proportionately increased, the only condition on which the Admiralty will consent to the scheme is the removal of the Winter shoal—a patch of rock on the eastward side of Drake's Island, and conditionally also on the removal of the Mallard shoal, which is near the entrance to the Cattewater. As the cost of blasting and dredging away the Winter shoal would be from £190,000 to £200,000, it is probable that this condition will be fatal to the scheme. The Corporation were desirous of deepening the harbour and constructing quays for ocean liners and other large vessels.

A PUMPING mill, driven by wind, has just been erected at Winesham, to obtain a supply of water for the house and premises at the Red House Farm. The wheel is erected on a 30ft. angle steel tower, built on the Eiffel Tower system. It is 12ft. in diameter, and drives a 2½in. pump, which has to force the water 300 yards, with a rise of 50ft. from the spring. The spring is covered in, and finds an abundant supply. This mill is claimed to be the best yet invented, in that it will work when all others are standing still. The wheel is of one piece, instead of the usual moveable vanes, and is made of galvanised steel, with eighteen concave vanes, and is governed by the tail, which acts automatically in the wind,

and turns parallel to the wheel in high winds, thus showing a minimum surface to exposure; and, by moving a weight up or down, less or more power can be obtained as required. It is found capable of raising 3500 gallons in twenty-four hours in a fair wind.

THE Taunton Town Council has adopted the report of the Main Drainage Committee, who had arranged terms with Messrs. Cameron and Co., of Exeter, for the preparation of plans and estimates to lay before the Local Government Board, and for superintending the carrying out of the necessary works for adapting the present sewage works to the septic system, should the Local Government Board give consent to the raising of the money required for that purpose.

A LARGE reservoir is on the point of construction at Staines, and will form an important factor in the water supply of London. The enterprise is a joint one, and it is being made for the West Middlesex, Grand Junction, and the New River companies. The reservoir will cost £1,000,000 to build, and, when finished, will have a capacity of 3,300,000,000 gallons of water daily. Messrs. J. Aird are the contractors. The idea of this immense reservoir is to store water whilst it is in a bright condition, and preserve it for distribution over the metropolitan area when the river is in flood.

THE delay in announcing the composition of the Sewage Commission, of which Lord Idlesleigh has accepted the chairmanship, is due, says the Times, to the fact that the Government have agreed, in response to urgent representations from North of the Tweed, to add a Scotchman to the list to be submitted for Her Majesty's approval. According to present arrangements there will be seven Commissioners besides the Chairman—two Local Government Board officials, two gentlemen with experience of the methods and necessities of large urban districts, an eminent bacteriologist, a well-known chemist, and a representative of Scotland.

IN the Court of Appeal recently the case of the Somersetshire Drainage Commissioners v. the Corporation of Bridgwater was heard. It was an appeal by the defendants from a decision of Mr. Justice Romer's. The plaintiffs claimed an injunction restraining the defendants from opening any new drain into any drainage works of the plaintiffs or causing or allowing any filthy or unwholesome water to flow into any watercourse within the plaintiffs' jurisdiction, and from cutting away or otherwise interfering with the east bank of the river Parrett so as to weaken the bank of the river. The plaintiffs objected to the construction by the defendants of an outlet with manholes in the bank of the river for a new drain above the town bridge carrying untreated house sewage into the river. Mr. Justice Romer had held that the plaintiffs were entitled to an injunction restraining the defendants from completing the present works and cutting through the bank of the river at the point in question without the leave of the plaintiffs, and also from conveying house sewage containing foul or noxious matter into the river by any such works or cutting, and that the defendants must pay the costs of the action. The Court of Appeal Judge now said he was not satisfied that the defendants' works had substantially weakened the bank of the river, or caused any damage to the plaintiffs, so as to call for any judgment on that ground after the arguments on appeal.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF TENDERS.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
7	Elgin—Additions to House	.....	Charles C. Doig, Architect, Elgin.
7	Halifax—Erection of Warehouse	.....	C. F. L. Horsfall and Son, Lord-street-chambers, Halifax.
7	Londonderry—Erection of Hotel	Miss A. Mullen	E. J. Toye, Architect, Strand, Derry.
8	Lowestoft—Erection of House	.....	Nelson Chambers, London-road, Lowestoft.
9	Amsterdam—Erection of Exchange	Corporation	Municipal Printing Office, Amsterdam.
9	Eastbourne—Erection of Model Lodging House	Sanitary Committee	Wm. Chapman Field, Architect, Town Hall, Eastbourne.
9	Totnes—Erection of Residence	Mr. E. J. Bowden	W. M. Tollitt, Architect, Totnes, Devon.
9	Wigan—Alterations & Additions to Presbyterian Church	.....	John Williams, 67, Greenhough-street, Wigan.
10	Croydon—Inland Revenue Office	Commissioners of H.M. Works	12, Whitehall-place, Westminster, S.W.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
May 10	Lowestoft—Alterations and Additions to Town Hall, &c.	Corporation	G. H. Hawby, Borough Surveyor, Town Hall, Lowestoft.
" 10	Southampton—Offices, &c., at Docks	London and South-Western Railway Co.	J. Dixon, Docks' Department, Southampton.
" 10	Widderwick, Hull—Alterations and Additions to Wesleyan Church.		Freeman, Son, and Gaskell, Architects, Albert-chambers, Carr Lane, Hull.
" 11	London, E.—Erection of Isolation Wards	Metropolitan Asylums Board	A. and C. Harston, Architects, 15, Leadenhall-street, E.C.
" 11	Menai Bridge—Erection of Masonic Room		R. G. Thomas, Architect, Menai Bridge.
" 11	Shiney Row, Durham—Erection of Cottage Flats & Shops		W. T. Jones, Architect, 7A, N. Bailey, Durham.
" 11	St. Helens—Engine House, &c.	Corporation	J. J. Lackland, Town Hall, St. Helens.
" 12	Boston, Lines—Alterations and Additions to Hospital		James Rowell, Borough Offices, Boston.
" 12	Brierley Hill—Erection of Power Station, &c.	Electric Traction Company Limited	T. Robinson, Architect, Victoria-chambers, Stourbridge.
" 12	Chelmsford—Erection of Villa		F. Whitmore, Architect, Chelmsford.
" 12	Llangefni—Erection of Schools	County Schools	Head Master, Nant Villa, Llangefni.
" 12	Warwick—Erection of Laundry	Union Guardians	F. P. Trepass, 8, Jury-street, Warwick.
" 13	Lakenheath, Suffolk—Erection of Cemetery Chapel	Parish Council	F. E. Rolph, Clerk, High-street, Lakenheath.
" 13	Oswestry—Alterations for Science and Art School	Corporation	Borough Surveyor, Guildhall, Oswestry.
" 13	Southampton—Offices, &c., at Police Station	Corporation	Borough Engineer, Municipal Offices, Southampton.
" 16	Aintree, near Liverpool—Erection of Shops		W. P. Hartley, Aintree, Liverpool.
" 16	Mount Pleasant, E.C.—Foundations at Parcel Depot	H.M. Office of Works	H. Turner, 15, Whitehall-place, S.W.
" 16	Southampton—Erection of Lodging-house	Corporation	Borough Engineer, Municipal Offices, Southampton.
" 16	Wednesbury—Erection of Fire Station, &c.	Corporation	E. Martin Scott, Borough Surveyor, Town Hall, Wednesbury.
" 17	Ipswich—Erection of Class-room	School Board	T. W. Cotman, Architect, Northgate-street, Ipswich.
" 18	Barton-upon-Irwell—Erection of Infirmary	Guardians	Hurrell and Taylor, 25, Brazennose-street, Manchester.
" 18	St. Helens—Erection of Destructor Shed, &c.	Health Committee	Geo. J. C. Broom, Borough Engineer, St. Helens.
" 19	Lancaster—Wing for Royal Albert Asylum		Austin and Paley, Architects, Castle Hill, Lancaster.
Aug. 31	Guyauquil—Construction of Custom House	Ecuadorian Government	Commercial Department, Foreign Office, S.W.
Oct. 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.		Brazilian Legation, London.
No date.	Abergavenny—School Alterations and Additions		E. A. Johnson, Architect, Abergavenny.
"	Ashton-under-Lyne—Alterations and Additions to Church and Schools.		J. H. Burton, Architect, 2, Guide-lane, Hooley Hill.
"	Bournemouth—Erection of Nave and Aisles		Boreham and Norton, Surveyors, Sunderland.
"	Cardiff—Erection of Buildings	Y.M.C.A.	J. P. Jones, Richards, and Budgen, Architects, 19, St. Mary-street, Cardiff.
"	Stevington, Beds.—Erection of Schools		Usher & Anthony, Architects, 9, St. Paul's-square, Bedford.
"	Dedham—Erection of Cottages	Mrs. Sharpe	J. W. Start, Architect, Colchester and Harwich.
"	Guiseley, Yorks.—Erection of Houses and Shop		F. Moore, Architect, 40, Sunbridge-road, Bradford.
"	Higham Ferrers—Erection of Houses	Freehold Land Society	H. Admitt, Architect, High-street, Rushden.
"	Hurst, Lancs.—House and Cottages		Joseph Heys, 196, Curzon-road, Hurst.
"	Newport, Mon.—Erection of Church		F. R. Kempson, 16, High-street, Cardiff.
"	Urwick—Erection of Farm Buildings	Misses Falcon	Settle and Farmer, Architects, County-square, Ulverston.
"	Watson, Norfolk—Erection of Cottage Hospital		H. J. Green, Architect, 31, Castle Meadow, Norwich.
"	Worcester—Alterations and Additions	Worcester and Malvern Laundry Co.	G. Dale Oliver, Architect, Carlisle.
"	Pennyfai, Bridgend—Schools, Parsonage, &c.	R. W. Llewellyn	Cook & Edwards, Architects, Masonic-buildings, Bridgend.
"	Mackamore, near Belfast—School Additions		M. Hawthorne, Dunady, near Belfast.
"	Randalstown, near Belfast—Alterations to Presbyterian Church.	Committee	R. J. Craig, Shane's Cottage, Randalstown.
"	Newbold, Derbys.—Additions, &c., to Methodist Church		W. Cecil Jackson, Architect, 29, Knivesmith-gate, Chesterfield.
ENGINEERING—			
May 9	Colwyn Bay—Electric Lighting Plant	Urban District Council	Lacey, Clirehugh, and Sillar, 78, King-street, Manchester.
" 9	Ripley—Construction of Water Mains	Urban District Council	R. Argile, Surveyor, Ripley.
" 10	Barrow-in-Furness—Boiler, Engine and Machinery	Guardians	J. Y. McIntosh, Architect, Cornwallis-street, Barrow.
" 10	Chester-le-Street—Laying Water Pipes	Rural District Council	H. Webb, Surveyor, 15, Lundy-terrace, Chester-le-Street.
" 10	London—Supply of Bridge Work	Bengal-Nagpur Railway Co. Limited	132, Gresham House, Old Broad-street, E.C.
" 12	Dublin—Supply of Mineral Oil Cisterns, &c.	Commissioners of Irish Lights	Engineer's Office, Irish Lights Office, Dublin.
" 12	Nantwich—Supply of Boiler	Guardians	C. Speakman, Clerk, Poor Law Offices, Nantwich.
" 14	Bollington, Cheshire—Reservoir, &c.	Urban District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
" 16	Birmingham—Construction of Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 17	Bethnal Green—Supply of Plant and Electric Light	Guardians	Giles, Gough, and Trollope, 23, Craven-street, Strand, W.C.
" 27	Sophia, Bulgaria—Construction of Port		Ministry of Public Works at Sophia.
July 7	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
" 7	Leicester—Supply and Fixing of Grids	Gas and Electric Lighting Committee	A. Colson, Engineer, Millstone-lane, Leicester.
No date.	Horsley, Belper—Supply of Water Mains	Urban District Council	Joseph Pym, Clerk, Belper.
"	Aberdeen—Electric Cables	Corporation	A. Blackman, Corporation Electricity Works, Edinburgh.
"	Aberdeen—Supply and Erection of Arc Lamps, &c.	Corporation	A. Blackman, Corporation Electricity Works, Edinburgh.
IRON AND STEEL—			
May 10	Manchester—Supply of Steel Tie Bars, &c.	Corporation	City Surveyor's Office, Town Hall, Manchester.
" 14	Bollington, Cheshire—Supply of Cast-iron Pipes	Urban District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
No date.	Siam—Railway Wagons, Rails, &c. (Two Contracts)	Royal Railway Department	A. S. Moss-Blundell, 28, Victoria-street, Westminster.
PAINTING AND PLUMBING—			
May 7	Downpatrick—Re-painting Asylum	The Governors	Medical Superintendent, The Asylum.
" 7	Letterkenny—Painting Exterior of Asylum		Stuart Russell, Clerk, Donegal District Asylum, Letterkenny.
" 7	Macclesfield—Painting the Library	The Committee	Librarian, Library, Macclesfield.
" 9	Marylebone, W.—Painting, &c., at Infirmary	Guardians	Steward, The Infirmary, Rackham-street, Notting Hill, W.
" 9	Wanstead—Painting School, &c.	School Board	John T. Bressy, 70 and 71, Bishopsgate-st. Within, E.C.
" 10	Aldershot—Painting, &c.	War Department	Royal Engineer Office, North Aldershot.
" 10	Sandhurst—Painting, &c.	War Department	Royal Engineer Office, North Aldershot.
" 13	Dalton, Lancs.—Exterior Painting of Villas	Trustees of the late Mr. G. B. Alexander	F. H. Clark, Parish Office.
ROADS—			
May 7	Ashby-de-la-Zouch—Supply of Materials	Urban District Council	G. H. Lilley, Surveyor, Council Offices, Ashby-de-la-Zouch.
" 7	Norwich—Street Works	Corporation	Arthur E. Collins, City Engineer, Norwich.
" 9	Abergavenny—Supply of Limestone, &c.	Rural District Council	J. Gill, Surveyor, Hereford-road, Abergavenny.
" 9	Church, Lancs.—Supply of Road Materials, Pipes, &c.	Urban District Council	W. E. Wood, Surveyor, Church.
" 9	Colchester—Supply of Granite, &c.	Guardians	C. E. White, Clerk, 57, North-hill, Colchester.
" 11	Kingston-on-Thames—Road Works	Corporation	Surveyor, Clatter House, Kingston.
" 16	Paddington, W.—Wood Paving, &c.	Paddington Vestry	Surveyor's Office, Vestry Hall, Harrow-road, W.
" 16	Wimbledon—Making-up Roads	Urban District Council	Surveyor's Office, The Broadway, Wimbledon.
SANITARY—			
May 9	Cromer—Erection of Public Conveniences	Urban District Council	A. F. Scott, Surveyor, Cromer.
" 11	Wokingham—Resewering Roads, &c.	Corporation	Surveyor, Town Hall, Wokingham.
" 13	Wilmslow—Construction of Sewers, &c.	Urban District Council	Council Offices, Swan-street, Wilmslow.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
May 25	Tipton, Staffs.—Laying-out Park	£25, £10	Urban District Council.
" 28	Trowbridge—Technical School	£40, £30, £20	The Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major F. L. Anderson, R.E., South Camp, Aldershot.
" 31	Cricklade (Wilts)—Water Supply Plans	£21, £10 10s.	Cricklade and Wootton Bassett Rural District Council.
June 1	Wallsend—Laying-out Park	£50, £20	Wallsend Urban District Council.
" 7	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 24	East Ham—Offices, Fire Station, and Public Baths	£103, £52 10s.	Urban District Council.
July 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phoebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.



ELIZABETHAN STRAPWORK FRIEZE. MANUFACTURED BY THE ANAGLYPTA CO. LTD.

COTTON WASTE:

SOME CHEMICALS AND A DECORATION.

(With Apologies to "John Oliver Hobbs.")

ONE hears often enough that the time has gone by for the invention of a new article, and that the proper direction in which to seek for fame and fortune is the useful employment of the waste products of our modern life in its highly complex system. This may be true, and certainly ever since the use of the waste products of gas manufacture began to give such encouragement to the careful chemist and manufacturer, the world has gone on seeking for similar openings for its waste generally.

Quite recently (writes a correspondent) I saw the process by which the apparently useless cotton waste becomes a highly decorative and artistic material.

I suppose I scarcely need say that it was in Lancashire that the demonstration was afforded me. Perhaps the modern schoolboy is kept so busy in the gathering of knowledge about South Africa, China, and other remote parts of the earth's surface, that he may possibly be unprepared to answer straight off as to where Darwen is. But any visitor to the tremendous maze known as Victoria Station, Manchester, may soon ascertain where the Darwen train starts from, and then, after a climb for about three-quarters of an hour or so, he may reach the town where there are to be seen the tallest chimneys in the county of tall chimneys. A ride in a steam tram or a walk of some twenty

minutes, more or less, lands one at the corner of a narrow lane, which has a somewhat less obtrusively urban appearance than the rest of the neighbourhood, and just in a little hollow on the right is the substantial mill of the Anaglypta Company. Here, a few weeks ago, I placed myself under kind and courteous guidance, and saw the transformation of cotton waste into the handsome and effective decoration known everywhere as Anaglypta.

The lowest story of the mill is where the revelation begins, and here there is a tremendous boiler into which the waste is turned, with soda for company, and any quantity of steam as a solvent. There is no deception. You see the boiler, and then upstairs you see the waste going in. After a washing and purifying stage, the waste becomes pulp, and then the machine for rolling the pulp takes charge of the transformed material. Passing between a succession of rollers, on one of which is the design it is intended to receive, the pulp disappears into a drying apparatus, and then, after a long journey, it emerges, stiff, dry, hard, and ready for the treatment of the decorator's paint brush. The colour is a sort of cream shade, imparted to it by the sizing it receives on its way through the mill. Here lies one of its great advantages. White it would be if it were unsized, but the amount of paint it would in that case require before it could be considered fit for decoration would be about three times as much as it is necessary to use for the sized material. An infinite number of designs is to be seen in the colouring rooms, for the Company prepares a good many of the decorations to the last stage, and leaves the decorator only the work of fixing them.

Two things strike the visitor in this part of the works very forcibly. One is the roominess of the sheds in which the colouring is done, and the other the splendid light provided. If the daylight fails—and we all know that this accident does sometimes happen, even in Lancashire—there is the electric light in abundance to fall back upon.

But there are the panels to consider. These are not surely made in rolls of pulp, with their high relief, and such sharp outlines as we are familiar with in their apparently endless variety of design? Not exactly. These panels are subjected to pressure such as would have delighted the inventors of that mediæval form of torture known as the *piene fort et dure*. A powerful hydraulic ram gives the pulp a squeeze of several tons per square inch, and the moisture is all but entirely driven out, and the design left unalterably impressed upon the material; the new panel is set to finally dry upon a travelling platform which is itself a marvel of machinery, and the thing is done. Meanwhile, in another part of the mill the artists are at work engraving upon brass cylinders every kind of design likely to catch the eye and suit the taste of a cultivated age.

I saw some tiles, or at least I thought I saw tiles, but my guide remarked that here were some tile designs, and what I thought tiles was revealed as an Anaglypt. And so in all sorts of forms, with every resource of adaptiveness, the erstwhile waste was being sent forth into the world as a useful, elegant, healthy, cheerful decorative material. Truly a transformation of which any man might well be proud, and well worthy of the resourcefulness of an age of enterprise and of an art-loving generation.



GALLEY FRIEZE. MANUFACTURED BY THE ANAGLYPTA CO. LTD.

THE ECONOMY AND MORALITY OF COMPETITIONS.

DISCUSSING the paper on the above subject, read by Mr. H. B. Creswell at a meeting of the Architectural Association, and a summary of which appeared in our last issue, Mr. Aston Webb said the question of competitions in the Profession was really a serious and important one. The practice was at present in vogue, and, as Mr. Creswell had remarked, they all thought that "something should be done." It was impossible to ascertain what the cost of competitions had been, and although, no doubt, it was very heavy, and was a grievous burden to the Profession, still, after all, the great question was—What were they going to do to reduce the burden? He thought the lecturer hardly laid sufficient stress upon what had already been done. The memorial prepared by Mr. Cole Adams had a definite object in view, which was at that time to insure that architects would say "I won't compete unless an assessor is appointed." A

all bad. With due limits it was an opportunity for young men to make a name, earlier than they otherwise would do. One naturally considered what was

THE EFFECT OF COMPETITIONS

upon Architecture, architects, and the public generally? With regard to the effect upon Architecture, a system which had produced such buildings as the Houses of Parliament and St. George's Hall, Liverpool, could not be said altogether to have done badly. There were many modern buildings which he ventured to think—it would be invidious to mention them for fear of omitting others—through the competitions had distinctly advanced the Art of Architecture in England. Undoubtedly the planning and arrangement of public buildings had been greatly advanced by competitions and by the publication of designs. But many were the evils in addition. As to the effect upon architects the system did imbue in the young man the gambling spirit. It might open visions before him which took him away from his general work

difficulty of selecting from these they suggested that five or six should be asked to have a competition. That was one way out of the difficulty, and he was not sure whether in small towns they would get a better building from any of the relations than from the competition. They must remember, too, that at present all architects charged exactly the same fees. The youngest architect and the most experienced architect charged 5 per cent. It was always a wonder to him that young men got the work to do at all; he wondered people did not go direct to the best men. It was a matter for regret that, with increased experience, architects had not increased their fees; but that was not the case, and so young men, when starting, had extreme difficulty in getting work at all, especially any important public work. Consequently they entered for competitions. There was a certain amount of pleasure in preparing a large scheme, for when a young man commenced business he was naturally confined to small work, and to have a definite scheme to prepare, where there was scope for his powers,



LOUIS XV. FRIEZE. MANUFACTURED BY THE ANAGLYPTA CO. LTD.

large number agreed not to compete, and actually carried out their agreement. In that respect

A VERY GREAT IMPROVEMENT

had resulted, and now an assessor was a generally recognised institution for competitions. Where it was not so, architects should still decline to compete. Or if they had not confidence in the assessor, or were not satisfied with the conditions, remedy laid in their own hands, by again declining to compete. Architects could not be too careful in that respect—to satisfy themselves that the conditions were fair and that the assessor appointed was a man of knowledge and with backbone to see that his decision was carried out by the committee. His experience of committees was that they owed a great deal more through a lack of knowledge than to a lack of fairness. They really did not understand the work, and if the matter was laid fairly and squarely before them by an assessor, they would be inclined to accept the principles laid down. He was not there to defend the system of competitions. He knew as well as anybody the great harm they did to many men, but at the same time he could not say the system was

and injured him. At the start a young man generally had a good many hours upon his hands, and those hours were not counted as golden guineas, and should not be put down as such. He did not think the cost and labour was excessive. For an assessor to arrive at a decision a sketch plan was really all that was required, with a certain amount of detail to show the Architecture. The custom of furnishing full plans was dying out, and therefore the labour now was much less. He never knew of a case where the clerks had been offered twice or more their salaries if the firm won the competition, as mentioned by Mr. Creswell. He had known them pay only the usual rates. With regard to

THE EFFECT UPON THE PUBLIC

generally, this much could be said: competitions were nearly always for public works. It would be very sad if private work, such as building a big house, was put up for competition. When a public work was proposed there was the question of selecting an architect. One or two of the authority had a relative or friend whom they would like to introduce, and the result was four or five architects' names were mentioned, and in the

was an opportunity not to be laughed at. The remedy in regard to competitions was in their own hands—to be more careful as to the conditions, and not object afterwards, but before. If the objection at the commencement of the competition was not satisfactorily met, then they should abstain from competing. It might seem a little hard, but it would greatly strengthen the hands of the Institute in trying to introduce a better system, and the more particular they were, the less number of competitions there would be, and the competitions on a large scale would be more fairly decided than previously. The system of competition was not so much in favour with the public as formerly, and there was never a better time than now for concerted action and unity to see that the conditions should be fairly and properly laid down. The great power they had was by abstaining if they were not so:—Mr. E. W. Mountford thought the lecturer had overstated the cost of and the harm of competitions to younger men. It was well known that when quite young in the Profession their time was not so fully occupied as they might wish. When a man commenced to practise as an architect, and went to his office and sat for

many weeks without any money coming near him, he thought that man would have been doing better by trying in some competition. If a man could get enough money without competitions, then, by all means, he should save them alone.

A GREAT POINT

As that 99 per cent. of young men, when they got work, found it was of a very small kind, and to a man of any ambition whatever it was a great treat to be able to work out a design for a large building, even if he knew he had no chance of carrying out the building. Moreover, he must have benefited himself largely by working it out. Unless it was a competition, he would never dream of working out such a scheme. The whole matter rested with architects generally. If they would compete for buildings where the committee had issued instructions which were obviously absurd or unfair, then they must take the consequences. It was a pity that men would be found to compete under any kind of conditions issued. He was recently invited to compete for a work of £1100, but did not do so, though several others did. Well, if men would compete for that they would compete for most things. A great deal

DEPENDENT UPON THE ASSESSOR.

There should be a man of considerable experience of the kind of building for which the competition was being held. He did not mean that a need actually have put up an exactly similar building, but that he ought to have some general knowledge of that kind of construction. For instance, it was not a good thing for a man whose practice was confined entirely to private houses to undertake to be referee in a competition for a technical institute; and he did not think it was a good thing for a man to be referee in a competition as to the peculiar requirements of which he was absolutely ignorant. He quite believed that referees were generally thoroughly up to their work, and that they worked to the best of their ability, but if they were selected with greater care, and if competitors were to inquire beforehand who was the referee, there might be fewer less satisfactory results than they had now. One did not hear, as in his young days, of the unfair decisions by referees; one did occasionally hear of a referee carrying out a building himself, rather than give it to the competitors, but those cases were rare now, though common years ago. He thought, after all, they would have to admit that

COMPETITIONS WERE NOT ENTIRELY EVIL.

They had bad points, of course, but taken all and they probably got better buildings and architects, and young architects had better opportunities than they would have if competitions were entirely given up.—Mr. F. T. W. Oldsmith said it seemed to him that if the Institute or Association could be brought into touch with the promoters of competitions on their inception, at the very earliest stage, before they appeared in the public press, some good might be done, and some useful assistance might be offered.—Mr. Mansford Pite said there was a delight in signing a big building. Architects were amongst the people who built castles in the air, and it was delightful to be able to sit down calmly and solemnly to work out in their mind, to imagine, or to put on paper, a building that was going to run into several hundred thousand pounds, thanks to Phebe Barnst and all the wealth placed at the disposal of the Profession. How many of them were not boiling over for municipal and universal schemes?

THE ARCHITECT MUST PRACTICE DESIGN,

but that was the very thing he did not do. He acquired a knowledge of Art, and was ready to turn on the tap of Gothic, Queen Anne, Classic, or whatever it might be, when he had to design a library or a stable; but, when he practised design, he would never be expert in design. Probably the most sound advice to give to a student was to take one's self of design and work it, and, by continuous designing, master the Art. He ventured

to think that many of the successes obtained were the result of study by persistent practice. As a result of the Cole-Adams memorial about half of the competitions now had assessors. That was a distinct improvement on what previously existed. Competitions should be made more public.

THE EXHIBITION OF THE DESIGNS

must be insisted upon persistently. He had a radical suggestion to offer. He thought if assessors worked without a fee they would succeed in getting one for every competition. He would suggest that the Institute be prepared to offer an assessor to a competition committee gratis, on the sole condition that the Institute had the privilege of offering the conditions. Failing that system, let them do away with the assessor altogether, and allow the competitors, subject to conditions from the Institute, to insist upon having the assessing of the competition in their own hands. He thought no one would be able to assess a competition better than those who went in for it. There was enough honesty in the Profession to see the good points in designs, which, of course, would be exhibited without the names.—Mr. C. H. Brodie agreed with the lecturer that competitions were

ALTOGETHER DEGRADING TO THE PROFESSION.

It was easy to ask men, and especially young men, not to go in for competitions, but they knew such a request was futile, because the strongest instinct in human nature was the gambling spirit, and the competition spirit was nothing less than that, and would go on.—Mr. G. Fellowes Prynne deprecated the action of architects who obtained the award in a competition when they had engaged someone else to execute the designs. He did not think anyone could condemn competition, for it existed in almost every branch of work. It might have evils, but if conducted with fairness, and men of thorough experience were chosen as assessors, then he thought they must put up with it.—The Chairman (Mr. H. W. Pratt) also urged that it was important assessors should be above suspicion, and that the name should be published with the announcement of the competition.—Mr. Creswell briefly replied to the vote of thanks.

THE WASS collection of Royal, historical, and armorial china and coronation glass, which is at present lent for exhibition to Messrs. Goode, of South Audley Street, will be regarded with interest by the lovers of Worcester, Coalbrookdale, Minton, Derby, and Sevres china, and the more so as it includes more than thirty examples of the Worcester enamels of the late Thomas Bott. These are the enamels which the Prince Consort, according to Mr. Llewellyn Jewitt, declared to be "the best things he had seen." They are white, on a dark ground, usually of dark blue, but occasionally of other colours. Flaxman was Bott's chief model, but he sometimes copied the designs of Thorwaldsen and Gibson, and figures and heads by Raffaele, Guido, and other famous painters. More often, however, the work was wholly his own, for he was no mean artist. He had, as the pieces shown here abundantly prove, a great deal of invention, and as complete a sense of colour as of form and outline; so that, if he was not quite Flaxman's equal, he was at least a worthy successor. The specimens of Royal services date mostly from the earlier years of this century, with a few older pieces. There is a plate here from the Worcester service made for the Duke of Clarence about 1812 which cannot be surpassed, even by the fine services made much more recently for members of the Royal Family. The seven pieces of the glass used at the Queen's coronation, and formerly the property of the Duke of Sussex, are, perhaps, more curious than artistic, and more valuable than curious. One or two of them bear the Crown and Royal motto on silver, let in, we believe, while the glass was at a white heat. The other historical relics consist of pieces of Nelson's Worcester breakfast services, with a plate from the service presented to him by the City after the battle of Copenhagen.

KEYSTONES.

At Patrick Dean of Guild Court application has been made for sanction to erect a new chapel, presbytery, and school. The estimated cost of the buildings is £30,000.

SIR JOSEPH FAYRE, Bart., K.C.S.I., M.D., LL.D., F.R.S., has accepted the presidency of the Seventeenth Congress of the Sanitary Institute, to be held in Birmingham, commencing September 27th.

A LOCAL GOVERNMENT BOARD inquiry has been held at Barking, with regard to an application made by the Urban District Council for a loan of £15,000 for purposes of electric lighting, and at the same time a further loan of £8250 to erect public baths.

THE restoration of Bradford Parish Church is to be proceeded with. The Bolling Chapel, in connection with the edifice, is to be included in the restoration. There is to be a second holy table for week-day communions, a screen erected in front of the Bolling Chapel, and a screen in front of the chancel.

IN view of the adjacent works now in progress in connection with the construction of the Central London Railway and the subways in front of the Mansion House, a careful examination has been made as to the effect, if any, of these operations on the stability of the Mansion House itself, with the result that no cause of danger or alarm is found to exist.

A VETERAN architect has passed away in the person of Mr. George Williams, who died recently at the residence of one of his sons, in Virginia. Mr. Williams was a pupil of Decimus Burton, and after a tour in Greece, which he devoted to a thorough study of the ancient buildings, he began practice in Liverpool in the earlier part of the century. The great seaport on the Mersey, and its neighbourhood offer abundant testimony to the skill and industry of the deceased architect, whose work is to be seen in other parts of the country. He was a son of the late Lieutenant-Colonel Williams, and a brother of Sir Monier Williams, the celebrated Oriental scholar.

RECOGNISING the hopelessness of its original plans, the Channel Bridge Company has adopted a new scheme, still more sensational. It now proposes to build a submarine bridge across the straits of Dover, about 50ft. below the surface, and to put on this bridge three locomotive platforms, something like gigantic dining tables. The castors of these tables are to run upon rails laid along the submarine bridge, and the legs are to be long enough to carry the tables themselves clear of the water. Each table is to carry a train on a set of rails, and a train from Paris to London will simply run on to the table at Calais and off it again at Dover. Each table is to run on fifteen pairs of castors, and the motive power is to be electricity. The cost is estimated at £14,000,000—one-third the cost of an ordinary bridge.

THE New Gallery has seldom been able to show a more interesting collection of pictures than that now on view. In the first place, it is as varied as can be wished, almost every kind of work, except perhaps genre, being strongly represented, and the genre, if little gems such as Mrs. Alma Tadema's "impromptu" may be said to exemplify it, is at least good, if not abundant. In other respects there is no deficiency at all, but rather an embarrassing wealth of work by many of our best artists. Nor can anything be more catholic or more liberal than the principle that has admitted painters of all schools. The directors have regarded with equal eye Mr. Holman Hunt and Mr. Moffat Lindner, Mr. Sargent and Mr. Walter Crane, and if the result is a medley of all schools, it is at any rate a medley of much distinction. Here are three works by Mr. Watts, two by Sir E. Burne-Jones, two by Mr. Holman Hunt, four by Mr. Sargent, one by M. Carolus Duran, three by Mr. J. J. Shannon, and landscapes by Mr. East, Mr. Thorne Waite, Mr. Peppercorn, and many others whose work is well known and always of importance.

Professional Items.

ABERDEEN.—The question of dealing with Greyfriars Church has engaged the attention of the Aberdeen Town Council for some time. At a recent meeting a report was received from the Finance Committee, stating that they had had under consideration the letter from the University Court in regard to the gift of £10,000 from the anonymous donor, and the proposal to hand over the old building of Greyfriars Church to the University with the view of its restoration and incorporation for academic purposes. The committee met and conferred on the subject with a deputation from the University Court. They have also had before them the various memorials which were addressed to the Council in support of the retention and restoration of the church. After deliberation, they resolved to report that, in their opinion, it would not be advisable to retain the fabric if it were to be devoted to academic purposes. It was resolved, however, to recommend that in the event of the anonymous donor consenting to continue his offer of £10,000 to the extension scheme, the Town Council should agree to restore the church with the view of its being retained for the use of the congregation, on the understanding that the University Court obtain the concurrence of the Presbytery and the Kirk-session to the proposal, and that the requisite funds are raised for the completion of the scheme. The report was confirmed by the Council.

ALLOA (Scotland).—New public baths, costing nearly £30,000, have been erected at Alloa. The style of Architecture is a free treatment of French Renaissance. The architects were Messrs. Burnett, Son, and Campbell, St. Vincent Street, Glasgow. On either side of the entrance hall there is billiard and news-rooms. Immediately beyond is the principal booking and towel office. The bath is 75ft. long and 33ft. broad. The hall wherein the bath is situated is 98ft. long and 50ft. broad. The roof, an open timber one, rises to a height of 25ft. from the level of the floor. There are galleries for viewing aquatic sports. The gymnasium is a chamber 76ft. long and 28ft. wide, with an open timber roof averaging 22ft. in height. There are two sets of hot and cold plunge baths, a first-class set and a second-class set. A Roman bath has been provided.

ASHILL.—The timber and stonework of the church tower have become very much decayed with age, and it has been decided to put the tower in a thorough state of repair. The whole of the top is to be taken off, and a new one of Ketton stone and flint, with the addition of stringed courses and moulded battlements, put on. The whole of the timbers and lead work are to be new. The plans are by Messrs. Milne and Hall, architects, London. The church has recently been fitted with hot air apparatus. At the completion of the work to the tower the bells are to be rehung. The work is being carried out by Messrs. Waters and Son, builders, Watton.

BELFAST.—A new Orange Hall in connection with No. 9 District, West Belfast, has been erected. The structure, which is situated on the Shankill Road, has a frontage of 46ft. 6in., and extends from front to rear, along Brookmount Street, 105ft. A corridor, 6ft. wide, runs from the entrance vestibule down the centre, and communicates with the side entrance at the back. In the front entrance vestibule the stairway is located which leads to the large hall; behind it, on the left, are lodge and ante rooms, and on the right, the reading, arch, and box rooms. Between these and the further end of the building, where the caretaker has his apartments, are provided a back stairway, lavatories, hall, kitchen, yard, and other conveniences. The lower ceilings are 13½ft. high, and the large hall is 32ft. by 36ft. In front there is a gallery about 12ft. wide, off which are a number of ladies' and gentlemen's retiring rooms. The side walls

are 16½ft. high to wall plate. The roof is supported by five semi-elliptical rolled steel trusses, and two half ones at each end, all resting on moulded cut-stone corbels, and bolted to same. The walls are broken up by pilasters under corbels, and the large arch in the rear wall is ornamented with a moulded archivolt. An ornamental gable rises in front, and is furnished with neat gablet copings and parapet. The entire work was carried out by Messrs. Campbell and Lowry, contractors, from plans and specifications prepared by Mr. Wm. Batt, architect, Royal Avenue.

BISHOP AUCKLAND.—A cottage hospital is about to be erected at Bishop Auckland. It will be 150ft. by 90ft. On the right of the vestibule will be the male and female wards, each containing four beds, and having a southern aspect. The bath and lavatory accommodation will be arranged in close proximity to the wards. On the left of the vestibule will be the matron's room, from which she will have command of the whole building. On the north-west will be the surgeon's room and dispensary, whilst the operating room will be entered from the hall on the east, and will have a large top light. The kitchen, scullery, larder, mortuary, and disinfectant rooms will face the north. The drainage is arranged on the straight line principle into the inspection chambers. The exterior of the building will be treated in the domestic style of Architecture, with red tiles, stucco gables, red quoins and arches, and grey clamp burnt brick facing. The architect is Mr. James Garry, West Hartlepool.

BRIDLINGTON QUAY.—The contracts for the whole of the work to be done at Holy Trinity Church, Bridlington Quay, to plans by Messrs. Smith, Brodrick and Lowther, architects, Hull, have been let to Mr. Anthony Lyons, contractor, Norton, Malton.

CARNOUSTIE.—A clubhouse is about to be erected in Park Avenue, Carnoustie, for the Union Club Company. The building will be in the Classic style of Architecture, two stories in height, the front wall being finished at top with a panelled parapet, with moulded pedestal and caps at intervals. The building has a frontage to Park Avenue of 37ft. The contractors are:—Masonry, Messrs. A. Black and Son; joinery, Messrs. A. Watt and Son; slater, Mr. A. Hogg; plumber, Mr. D. McKay; plastering, Messrs. A. M'Ritchie and Co.—all of Carnoustie. The plans have been prepared by Mr. David Fraser, Carnoustie, and the work will be carried out under his supervision.

DERBY.—In the new Church of St. Augustine's, Derby, accommodation is provided for 430, but, when the finances will admit of it, and the chancel, vestry, and south aisle are built, the church will provide sitting room for 750 people. So far, an expenditure of £3225 has been incurred. The builders are Messrs. J. T. Tomlinson and Co., and the architects Messrs. Naylor and Sale.

EDINBURGH.—The new Home in course of erection for the Edinburgh Industrial Brigade occupies a commanding position. On the Fountainbridge and Ponton Street frontage it will consist of four stories and a basement, and towards Thornybank there will be three stories. The Fountainbridge frontage will have several shops. The frontage above the shops will be finished with stone, while those towards Ponton Street and Thornybank will be with terra-cotta faced bricks. The house will occupy an area of about 815yds., and will be built round an open court. The site for the building has cost £3000, and the estimates amount to about £10,500, making a total of £13,500. The plans have been prepared by, and the whole will be carried out under the direction and supervision of, Mr. Frank W. Simon, architect.

LEEDS.—The memorial stones have been laid of a Methodist New Connexion Sunday School. On the site of the new building a Sunday school had stood since 1856, and the chapel was erected twenty-five years ago. The old school building has now been pulled down,

and, from designs by Mr. W. S. Braithwaite, a new building is being erected. It is to be a two-storied edifice, the ground floor being an assembly room, and the upper floor comprising a preaching room and six class-rooms.

LOCKERBIE.—The new Parish Church at Lockerbie, which has been in course of erection since the demolition of the old building in the spring of 1896, has been opened. The new building is of red freestone. The style of Architecture is the Early English Gothic. The architect has adopted a square tower, with battlement and pinnaced parapet rising to a height of 65ft. A miniature octagonal spire of stone rises to a further height of 30ft. and finished with carved stone crockets, and is completed with a weather vane on the top bringing the total height of the tower up to 95ft. The total cost was about £5000. The architect was Mr. F. J. C. Carruthers, Dumfries.

LONDON, W.C.—The old Chief West Central District Post Office at the corner of Southampton Street, Holborn, has been closed for good, and the new building in Hyde Street, New Oxford Street, opened for the transaction of business. The lower sorting-room is a huge apartment 168ft. in length by 58ft. in width fitted with every modern appliance for facilitating sorting operations. Above is another reserve room equally large. In the basement there are recreation rooms and kitchens for the general staff. There is also an institute, but for messengers only—in this part of the building. The new post office is from the designs of Mr. Henry Tanner, architect, Her Majesty's Office of Works.

LUDDENDEN.—A new organ chamber, choir vestry, &c., are being added to the present church at Luddenden. The present organ now in the west gallery is to be substituted by one of greater capacity, and on a more modern principle, by Messrs. Abbot and Smith, Leeds. The organ chamber is provided with a basement floor, available for hydraulic lifting, and has well-proportioned double-arch openings into the chancel on the north-east side thereof, with cusped openings above and below gallery in nave. Beneath the new choir vestry will be cellaring for heating apparatus and coal store. The architect for the work is Mr. T. L. Patchett, of Halifax. The mason work is to be done by Mr. Thos. Pickles, Midgley; the contractors for the other departments being:—Carpenter and joiner, Messrs. Eli Alderson and Co., Luddenden; plumbers and glaziers, Messrs. John Nay and Son, Halifax; slater and plasterer, Mr. John Robinson, Luddenden.

PERTH.—Plans have been approved for the erection of a new theatre on a piece of ground between Mill Street and High Street. The new theatre will have an entrance from High Street, the principal street in the city. The plans show seating accommodation for about 1000 persons, but can be extended to accommodate 1300. It is intended to fit the place with wires with a view to the electric light being utilised. Building operations will begin immediately.

PORTSMOUTH.—The new buildings for the Pearl Assurance Company, to be erected at the corner of Commercial Road and Grigg Street, will be commenced immediately. The plans have been prepared by Mr. C. W. Bevis, Southsea. The block will consist of office with four shops, and a private hotel, and the Company has decided to widen the road at the corner to 60ft. by setting back the buildings to a depth varying from 18ft. to 9ft. the length of frontage. The tender of J. H. Corke, for £24,150, has been accepted for the work.

WOMBWELL.—The nave of the new church which is in course of erection as the Parish Church of St. Mary's, Wombwell, has been consecrated. The church is from designs by Messrs. Garland and Hadfield, Sheffield. The floor of the nave is set with wood blocks, side aisles paved with tiles. Only the chancel has yet been built, costing about £5000.

Under Discussion.

LIVERPOOL ENGINEERING SOCIETY.

At the twelfth ordinary meeting of the present session of the Liverpool Engineering Society, Mr. John A. Brodie was appointed President for the ensuing year, and Messrs. A. Comley-Holmes and Mr. John A. F. Aspinall were elected vice-presidents. A paper was read by Mr. Hugh Rogers, of the Liverpool City Board service, upon the "Liverpool Landing-stage Extension and Prince's Jetty."

SCULPTURE IN RELATION TO ARCHITECTURE.

The Edinburgh Architectural Society met recently to hear a paper by Mr. T. Duncan, M.D., on "Sculpture in Relation to Architecture." Mr. A. Lorne Campbell was in the chair. The lecturer, after bitterly lamenting the want of sculpture in modern work, and attributing it to the ideas of building committees and schools of Art, traced the history of sculpture in connection with Architecture, aiming that that was its highest branch. Mr. Rhind praised the present French school and system of encouraging sculpture.

INSTITUTION OF CIVIL ENGINEERS.

At the general meeting of the Institution of Civil Engineers, Sir John Wolfe Barry, President, in the chair, the result of the ballot for the election of officers was declared as follows: President, Mr. W. H. Preece, C.B.; vice-presidents, Sir Douglas Fox, Mr. James Managh, Sir William Anderson, and Sir William Hite; other members of the council, Mr. James Barton (Dundalk), Mr. Horace Bell, Sir Alexander Binnie, Mr. Thomas Forster Brown (Cardiff), Mr. Henry Deane (Sydney), Mr. R. R. Galbraith, Mr. George Graham (Glasgow), Mr. J. C. Hawkshaw, Mr. Charles Hawksley, Mr. G. H. Hill (Manchester), Dr. Hopkinson, Mr. J. C. Inglis, Mr. Alexander Macdonald (India), Dr. Alex. B. W. Kennedy, Mr. John Kennedy (Montreal), Sir James Kitson, Mr. P. (Leeds), Mr. A. G. Lyster (Liverpool), Mr. William Matthews, Sir Guilford Molesworth, Sir Andrew Noble (Newcastle-on-Tyne), Mr. Alexander Siemens, Mr. Thomas Stewart (Lape Town), Mr. F. W. Webb (Crewe), and Mr. Leader Williams (Manchester).

SOCIETY OF ARCHITECTS' ANNUAL DINNER.

The annual dinner of the Society of Architects was held at the St. James's Restaurant, Piccadilly, W. The president, Mr. Walter Paden, occupied the chair. Mr. Atherley-Mones, M.P., in proposing "The Society of Architects and Architecture," said the institution had not as yet attained very mature years; "had only reached the interesting age of sapling. But it had an object in view, which was to raise, not the individual status of its members, because that was scarcely a necessary object to aim at, but the standard of Architecture, and to secure greater benefits for the public at large. He regretted the difficulties that had hitherto stood in the way of the passage of an Architects' Registration Bill, but he could advise the Profession, in the face of the many difficulties before them, to resort to the system of lobbying in order to secure the passage of such a measure. The Legislature had, in his opinion, been neglectful of the interests of the architectural profession. The President, in responding, referred to the question of a Registration Bill, and said it was not his intention or desire of a society such as theirs that there should be a monopoly. All they asked was that in the future those who were to join the Profession should not enter it without some guarantee that they would pass qualifying examination.

SHEFFIELD SOCIETY OF ARCHITECTS.

The annual meeting of the Sheffield Society of Architects and Surveyors was held at the School of Art, Arundel Street, the President, Mr. R. W. Fowler, F.S.I., in the chair. Mr. J. Innocent, the Honorary Secretary, read the annual report of the Council, which stated that the past year closed with the highest

balance in hand the Society had ever known. Numerically, the Society had continued to grow, and, although there were two deaths, two withdrawals, and three lapses of membership during the year, there was a net increase of eight members. There were now 114 members, consisting of 31 fellows, 43 associates, 18 students, 5 honorary, and 17 lay members.

—Mr. F. Fowler, Honorary Treasurer, presented the balance-sheet, which showed a sum of £121 18s. 7d. in favour of the Society. The report and balance-sheet were adopted. On the motion of the President, seconded by the Vice-President, and supported by Mr. Fenton, a vote of thanks was passed to the Honorary Secretary, Mr. C. J. Innocent, who declined to be re-elected. Thanks were also passed to the other officers and the Council. The ballot resulted in the following elections for the ensuing year:—President, Mr. E. W. Fowler; Vice-President, Mr. J. Smith; Hon. Treasurer, Mr. F. Fowler; Hon. Secretary, Mr. W. C. Fenton; Council, Messrs. C. Hadfield, E. M. Gibbs, C. J. Innocent, T. Winder, A. Smith Denton, J. R. Wigfull, and J. B. Mitchell-Withers.

BUILDING FEDERATIONS.

At the annual meeting of the Newcastle, Gateshead, and Tyne District Master Builders' Association, Mr. Walter Lowry was re-elected President for the ensuing year. In his opening address, Mr. Lowry said during last year one matter of very great importance to the building trade had been accomplished. He referred to the formation of the Northern Counties Federation of Building Trade Employers. Great success had attended its formation, as the whole of the Master Builders' Associations in Northumberland, Durham, Westmoreland, and Cumberland (with the exception of one with whom negotiations were pending) had consented to join. He might mention that Federations of a similar nature were and are being formed in most of the other counties in England, with the intention eventually of all joining together and forming a National Federation of the Building Trade Employers of England. That there were great benefits to be derived from a combination like this it did not require any words of his to explain, but he wished it to be clearly understood that the objects of this Federation were conciliatory to the operatives, and that it would, in all cases of dispute with them, do its utmost by arbitration or otherwise to avoid strikes and lock-outs.

INCISED SLABS.

The Essex Archaeological Society recently gathered at Colchester Castle for their annual meeting, Mr. Henry Laver, F.S.A., presiding. —Mr. Miller Christy gave some information about two interesting rubbings—one from a slab in Brightlingsea Church, and the other from the matrix of a brass at Pleshey. The first presented a beautiful incised floriated cross, rising from a conventional Calvary, and having five smaller crosses—two at the foot, one at the left side of the main stem, and two above the arms near the top. He believed it to be of not later date than the twelfth century, and possibly of the eleventh. The rubbing from Pleshey showed the outlines of recumbent male and female figures. —The Chairman declared that the making of these incised slabs and brasses burst into perfection at once, without any preliminary period of less perfect Art. The earliest brasses and slabs known, those of the twelfth and thirteenth centuries, were the most beautiful the world ever saw, or probably would ever see. They were very rare in England, but most abundant in the churches of Holland and Belgium. —Mr. Lyman, F.S.A., did not agree with this, remarking that slabs and brass matrices were very common in the Midlands, though, owing to the coarseness of the stone employed (millstone grit), they were very rough at the edges. Incised work occurred very frequently in alabaster.

MR. GLADSTONE has promised £1000 towards the cost of erecting a new church at Shotton, Hawarden.

Correspondence.

ST. MARGARET'S CHURCH, WESTMINSTER.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In a paragraph on page 199 of your issue of a fortnight ago, it is implied that the roofs of this church are ancient. This is not the case; they date probably from the last century. The plaster ceilings were renewed, and the oak ceilings, with three ribs, arches, &c., substituted during the restoration of the church some twenty or five-and-twenty years ago.

As the paragraph is misleading, you may like to make this correction.—I am, Yours faithfully, X.

CONCERNING COMPETITIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In the *résumé* of my paper on "Competitions," published in your last issue, the value of the average competition should have been stated as £9000; the average cost of making a set of drawings, £30; and the number of competitors, 40.—Yours faithfully, H. B. CRESWELL.

Enquiry Department.

I. C. B.—Will I. C. B. please forward his address—not for publication.

COMMISSION ON AN UNFULFILLED CONTRACT.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Sometime ago I was instructed by a client to prepare plans, specifications, &c., for a house he proposed to build at an agreed remuneration of five per cent. on the cost of the work, such agreement including preparation of the contract drawings, specification, &c., obtaining tenders, submitting plans to the District Council, and superintending the erection of the house, and it was further agreed that if the plans, &c., were prepared and the tenders were too much, or for any other reasons that the work was abandoned, the charge should be 2½ per cent. After having prepared the plans to his requirements, and about half completed the specification, he instructs me not to proceed any further, as he has bought an adjoining house, and does not therefore require to build. As he disputes the amount charged by me, will you please inform me, through the medium of your valuable journal, what percentage you consider I am entitled to under the circumstances, and if such percentage should be charged on the estimated cost of the proposed house.—Yours faithfully, "DOUBTFUL."

We are of opinion that you are entitled to a commission of two or two and a quarter per cent. of the amount you were instructed to spend on the house.

MUNICIPAL AND COUNTY ENGINEERS' EXAMINATION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In answer to "Subscriber," re Engineering Examination, I should advise him to procure the Surveyor for January 15th, 1897, wherein he will find a complete list of books pertaining to the four divisions of the Municipal and County Engineers' Examination—a list which I supplied to that paper, and which list was spoken very highly of by various municipal engineers, &c., in the country. The list contains both elementary and advanced books. With regard to books on hydraulics and the Public Health Acts, "Subscriber" will find all he requires in "Practical Hydraulics," by Bore; "Applied Mechanics," by Cryer and Jordan; "Elementary Hydrostatics," by Briggs and Bryan; Lumley's, or Glen and Jenkins' "Public Health Acts"; or "Practical Guide to Sanitary Legislation," by Angel and Morley.—Yours,

EGBERT RUSHTON,
Inspector and Surveyor to Cleethorpes-with-Thruscoe Urban District Council.

Trade and Craft.

MESSRS. COBBETT AND CO.

This firm of timber merchants' head depôt is at Virginia Road, Bethnal Green, E. Amongst the timbers always obtainable here are the American whitewood, black walnut, and oak, kept in a variety of thicknesses and widths. Mahogany is also extensively stocked, and can be cut to boards of whatever thickness required. Other timbers supplied by Messrs. Cobbett and Co. include satin walnut, Kauri pine, Oregon pine, Sequoia or redwood, pitch pine, birch (including American birch for chairmakers), Canadian ash, teak, veneers, &c., all of which is listed at various sizes. Yellow joinery deals, battens, flooring, matching, scantlings, and, in fact, any kind of wood used in constructional work is stocked by the firm, who also make a speciality of squares for turning, walnut and oak flats for framing, mahogany cut out for newels, birch and deal turned table legs, planks for picture backs, prepared panels, planed fret woods, and picture frame mouldings. They likewise make prepared flooring a feature, supplied in maple and quartered oak, tongued and grooved, hollow backed to prevent warping, bored for secret nailing, and with a surface ready for polishing.

CONSOLIDATED FIELD FENCING.

Wire fencing has been in vogue many years, but not till a comparative recent date have the developments taken place which have led to its present-day popularity. One of the latest improvements is the woven wire fence, invented and supplied by the Consolidated Steel and Wire Company, of New York, for whom the London agents are Edward Le Bas and Co., 18, Billiter Street, E.C. The woven wire fence is made in various styles and sizes to suit all requirements, a feature of the construction being the winding of the joint and the crimp in the strand wire which prevents its moving out of place. It is an adjustable fence, and by reason of the way the joints are made and of the square mesh can be stretched over uneven ground and always kept the same distance from the ground. The method of making the joint is such as to abolish the use of small wire, and leave greater strength; and it may be mentioned that on account of the extreme twist in forming the joints only the best steel is used. The crimp provides for expansion and contraction, so that there is no danger of the fencing being weakened by the influence of heat or cold. The catalogue published by the Company gives illustrations of the several designs and also full particulars for erecting the fencing.

THE TRUSTY OIL ENGINES.

The Trusty Oil Engines have of late gained considerable favour. The principle upon which they are worked is that generally known as the "Otto," or "Four Cycle." A vast amount of study has been devoted to this principle, with the result that many improvements have taken place, and now we have the Trusty Oil Engines, which can be worked with ordinary petroleum or kerosene oils. They can be adjusted to work as well and economically with the heavy mineral oils, having a flashing point of 250deg. Fahr. After close test. Amongst the other features of the Trusty Oil Engine is its simplicity by the fewness of parts, the easy access to the working parts, its compactness, hence its suitability for working in a limited space; the safety with which it can be worked, and the absence of chimney, smoke, water gauges, safety valves, &c., while it is stated that its use effects a saving of 50 per cent as compared with steam power. It is possible to convert a Trusty Oil Engine into a gas engine, or vice versa. The horizontal engines are suitable for electric lighting, pumping, sawing, engineers' shops, brick machinery, &c., while portable engines of the same principle are adapted for contractors' and builders' work, pumping, farming, &c.; in fact, either would be a good substitute where steam or other motive power is required. The Trusty Oil Engines secured the highest award

and gold medal at the Queensland International Exhibition, at Brisbane, last year. The works are at Cheltenham.

AN ELECTRIC LOW-WATER ALARM.

Wherever steam is used as a motive power, there danger is also. A simple and effective precaution against this danger is a need which has long been felt. Brown's Patent Electric Low Water Alarm for steam boilers appears to meet the want in many respects. By the aid of this invention an indication that the water in the boiler is getting too low is easily conveyed. A mercury tube, similar to the thermometer tube, is encased in a metal fitting, which is attached to the boiler front by a pipe and elbow inserted at low water level, or through the crown of shell (as in a marine type); two platinum wire ends are inserted in the sides of the mercury tube above the normal position of the mercury, one of which is attached to the fitting, thus forming the earth part of circuit, and the other to the insulated binding screw at the top. There is, therefore, only one wire to the bell and battery. So long as the water in the boiler is above the low-water level, it is forced up into the pipe and body of fitting; the temperature, by the cooling action of the atmosphere, quickly falls below boiling point, thereby keeping the mercury below the wire ends; but should the water fall below the low water line, the water, by its gravity, falls back again out of the pipe and fitting, which is instantly filled with steam, the higher temperature causing the mercury to rise above the two wire ends, thus making a mercurial connection between them, completing the electric circuit, and causing the alarm bell to ring. Upon the water being replaced the mercury falls, thus breaking the circuit and the alarm stops. The invention is recommended as having no working parts to get out of order, for its cheapness, and for its ready attachment to any boiler. It is supplied by Messrs. Arthur D. Studd and Co., of Montague Street, Kettering, who, as engineers, merchants and factors, also supply all kinds of contractors' and builders' machinery, metal fittings of every description, engineers' tools, oils, &c.

The Princess's Theatre has been closed for extensive alterations, necessarily occupying several months. The interior will be virtually rebuilt, the intention being to increase the pit and gallery, whilst making the slope less steep. There will also be more stalls and more private boxes. The reconstruction, under Mr. Blomfield Jackson, is to be thorough.

The scheme for providing increased church accommodation in the diocese of Manchester, is to build in the next five years sixteen churches, at a cost of £3000 each; and eleven mission-rooms, at a cost of £1000 each. £20,000 is required for the sites. All the churches and mission-rooms built are to be of a plain and commodious character, on the lines already laid down by the Bishop.

The annual exhibition of the work of the students of the Battersea Polytechnic shows that the appreciation of the advantages offered by the institution are well maintained. The work on view included carpentry, decorative and artistic design, carving, photography, iron-work, plaster models, brickmaking, and plumbing. Most of the trade and engineering work is carried on in the evening by young students employed at their various trades in the daytime.

In connection with the memorial to the victims of the Charity Bazaar, at Paris, last year, the first stone of a monument destined to commemorate the tragic event will be laid to-day, May 4th. The final plans of the monument not having yet been submitted to the committee, it would be impossible to give a full description of it. Suffice it to say that the monument will be a fine one, and will do the greatest honour to the two architects to whom the construction has been confided. The two architects are M. Guilbert, Inspector-General of Historical Monuments, and M. Trilhe, well known for his remarkable works in the Château of Combourg, belonging to the Comtesse de Chateaubriand.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BLETCHINGLEY.—Accepted for additions to work house, Bletchingley, Surrey. Mr. Fredk. Elliff, architect, Caterham. Quantities by Mr. G. H. Chapel. F. G. Minter, Westminster. £15,537.

CARLETON (Yorks).—For the erection of ten dwelling houses at Carleton, Pontefract, for the Carleton Coal and Brick Company. Messrs. Greaves & Sidebottom, A.L.E., Ropergate-chambers, Pontefract. B. Wormald. £1,125. Wilson Dixon. 1,325. Beilly and West, Pontefract (accepted). 1,310. Six Lowest Trades. 1,429.

CHADWELL HEATH.—For Contract No. 3, superstructure of lunatic asylum, Chadwell Heath, Essex, for the County Borough of West Ham. Mr. Lewis Angell, architect to the Corporation. Gregar and Son. £247,700. Chessum and Son. £221,433. Patman and Fotheringham. 235,000. Leslie and Co. 290,531. Shillitoe and Sons. 226,964. Pattison and Sons, Ruskington*. 198,211. * Accepted.

DEVONPORT.—For structural alterations to "The Wellington," William-street, for Mr. T. H. Bryant. Mr. Robt. H. B. Neal, architect, Central Exchange, Plymouth. J. P. Berry. £1,692 0 0. J. H. Blackhall. £1,451 0 0. J. Goad and Co. 1,535 0 0. H. Full. 1,340 10 0. G. B. Turpin. 1,495 0 0. J. H. Palmer (accepted subject to revision). 1,233 0 0. A. R. Lethbridge & Son. 1,468 0 0. F. O. Ambrose. 1,467 10 0.

KING'S LYNN (Norfolk).—For rebuilding business premises at High-street and Union-lane, for Messrs. Jermyn and Sons and Messrs. Jermyn and Perry. Mr. H. J. Green, architect, Norwich. J. S. Smith. £29,040 5 0. P. Banyard. £8,504 14 1. R. Dye. 8,996 0 0. Kerridge & Shaw. 8,373 0 0. R. M. Parkinson. 8,900 0 0. Cambridge*. 8,373 0 0. J. Youngs & Son. 8,635 0 0. Bardell Bros.†. 8,189 0 0. * Accepted conditionally. † Too late.

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HADLEY Herts.—For the erection of three cottages, for Mr. G. Walter Davis, surveyor, 61 and 62, Ancery-lane, W.C. Quantities by Mr. E. A. V. Garnham, Great James-street:—
Messrs Ellwood ... £1,288 | H. Harrison, Hadley Green (accepted) ... £1,154

HARWICH.—Accepted for the supply and erection of a cast-iron tank to hold about 275,000 gallons, including sub and superstructure of steel stanchions, girders, and piping, &c., for the Tending Hundred Waterworks Company, Harwich:—
Pearson and Co., St. Dunstan's-hill, London, E.C. ... £2,182 12. 6

LEEDS.—For the erection of two houses, Victoria Park Estate, Bramley. Mr. H. Swanwick, architect, 101, Burley Lodge-road, Leeds:—
Bricklaying and Masonry.—W. H. Nichols, Wortley, Leeds ... £395 0 0
Carpentry and Joinery.—Irving & Bristow, Leeds ... 284 19 4
Plumbing and Glazing.—Story & Co., Leeds ... 92 12 0
Plastering.—J. H. Brook, Armley, Leeds ... 50 11 0
Slatting.—John Atkinson and Son, Leeds ... 38 0 0

Total ... £861 2 4

LONDON.—For pulling down and rebuilding 50, Rupert-street, Haymarket. Messrs. Chambers and Dewes, architects, 4, Bloomsbury-place, W.C.:—
Dove Bros. ... £2,195 | Whitehead ... £2,125
Anley ... 2,160 | Perkins ... 2,119
Lathey Bros. ... 2,130 | F. G. Minter (accepted) ... 2,100

LONDON.—For the erection of four shops in High-street, Harlesden, N.W., for Mr. F. W. Sanderson. Messrs. Saville and Martin, architects. Quantities supplied:—
J. O. Richardson ... £8,523 | T. E. Mitchell ... £7,464
Shurmer and Co. ... 8,450 | Burman and Sons ... 7,390
Patman and Fotheringham ... 8,231 | W. D. Palmer & Co. ... 7,350
Peacock Bros. ... 7,180

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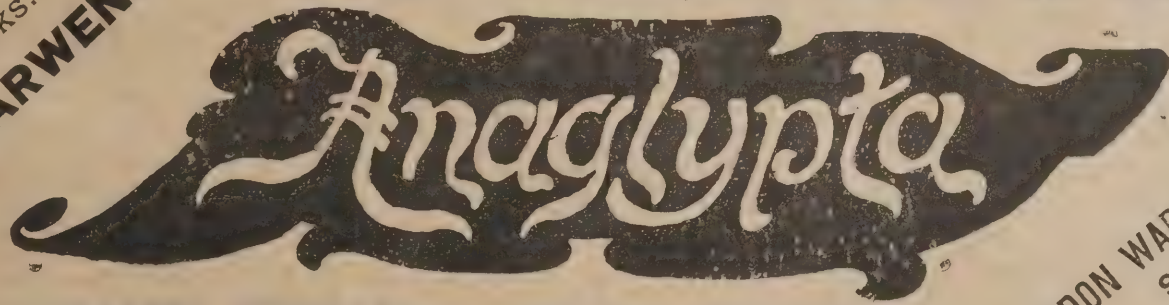
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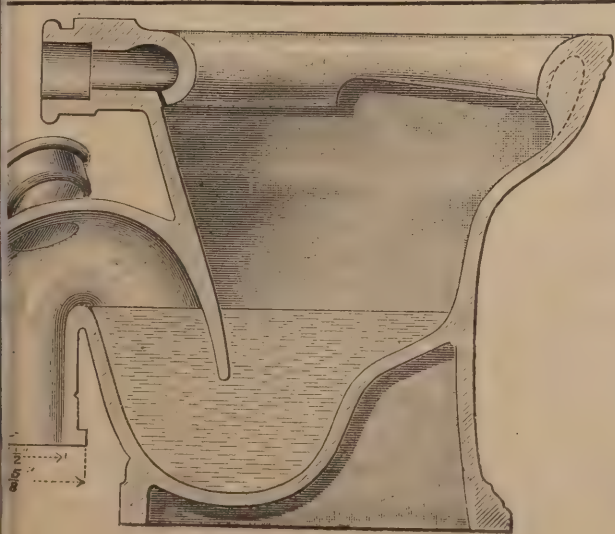
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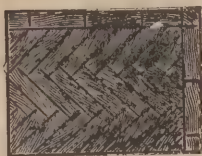
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LONDON.—For laundry apparatus and machinery at the Infirmary, St. John's Hill, New Wandsworth, S.W., for the Guardians of the Poor of the Wandsworth and Clapham Union. Mr. T. W. Aldwinckle, architect:—
J. and F. May ... £2,700 0
H. F. Joel and Son, and T. Potter and Sons, Ltd. ... 2,639 0
Fraser and Fraser, Ltd.* ... £2,494 10
Z. D. Berry and Sons (withdrawn) ... 2,100 0
*Accepted.

LONDON.—For work in foundations at the Horniman's Museum, No. 100, London-road, Forest Hill, S.E., for Mr. F. J. Horniman. Mr. C. Harrison Townsend, architect. Quantities by Messrs. C. John Mann and Son:—
Higgs and Hills ... £3,884
J. O. Richardson ... 3,658
Foster and Dicksee ... 3,595
J. Mitchell ... 3,592
J. and S. Bowyer ... £3,484
J. Smith and Sons ... 3,477
Colls and Sons ... 3,470

LONDON.—For rebuilding the "Princess Victoria," Uxbridge-road. Mr. W. M. Brutton, architect. Quantities by Mr. G. Silvester:—
W. Rowe ... £8,720
Steven Bros. ... 8,158
Tyreman ... 8,150
Holloway ... 7,786
Hopkins ... 7,733
Hooper and Sons ... £7,600
Pritchard and Renwick ... 7,460
Courtney and Fairbairn ... 7,379
F. G. Minter ... 7,286

LONDON.—For the erection of Mayes Hall, Mayes-road, Wood Green, N., for Mr. C. Russell Hurditch. Mr. J. R. Manning, architect. Quantities by the architect:—
F. Voller ... £2,776 0
Wilnot and Sons ... 2,703 0
J. O. Richardson ... 2,640 0
Battley, Sons, and Holness ... 2,604 0
F. and H. F. Higgs ... £2,520 0
J. Pocock ... 2,514 13
Holliday and Greenwood ... 2,408 0
W. Rubardt & Son ... 2,200 0



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LONDON.—For erecting a bakery at New Brompton, for the New Brompton Economical, Industrial, and Provident Society Ltd. Mr. Ernest J. Hammond, architect and surveyor, New Brompton, Kent:—
Thos. Cornelius ... £3,830 0 0
C. Gray Hill ... 2,200 0 0
General Builders' Co-op. Soc. Ltd. ... 8,700 0 0
W. C. Snow ... 8,520 0 0
H. E. Phillips ... £7,960 0 0
E. W. Fulley ... 7,900 0 0
J. Saunders ... 7,099 14 1
J. H. Harris, Chatham* ... 6,650 0 0
*Accepted.

LONDON.—For additions to factory premises, Carpenter-road, Stratford, Essex, for Messrs. A. Boake Roberts and Co. Ltd. Messrs. Fletcher and Migotti, architects. Quantities by the architects:—
West ... £3,600
Harris and Wardrop ... 3,573
Nightingale ... 3,533
McCormick ... 3,468
Dabbs ... £3,345
Courtney & Fairbairn ... 3,255
S. J. Scott (accepted) ... 3,239

LONDON.—For making alterations, repairing, and re-decorating the mansion No. 52, Grosvenor-street, Grosvenor-square, W., for Mr. William Tebb. Mr. Philip A. Todd, architect, 12, Regent-street, S.W.:—
W. H. Lascelles & Co. ... £2,871
W. H. Kelland ... 2,695
Jos. Cannon ... 2,529
Edwards and Medway ... £2,525
Thos. Gregory and Co. ... 2,490
E. S. Buckeridge ... 2,270

LONDON.—For widening improvement at Tetherdown, Muswell-hill, N., for the Hoxsey Urban District Council. Mr. E. J. Lovegrove, engineer and surveyor:—
J. A. Dunmore ... £1,104 7 6
Pedrette and Co. ... 953 1 6
W. Griffiths ... 942 15 1
W. Walker ... 941 10 2
G. Bell ... 894 0 0
T. Adams ... £884 12 9
F. A. Jackson and Sons, Limited ... 810 15 10
Williamson & Son, Ltd., Green-lanes* ... 772 0 0
*Accepted.

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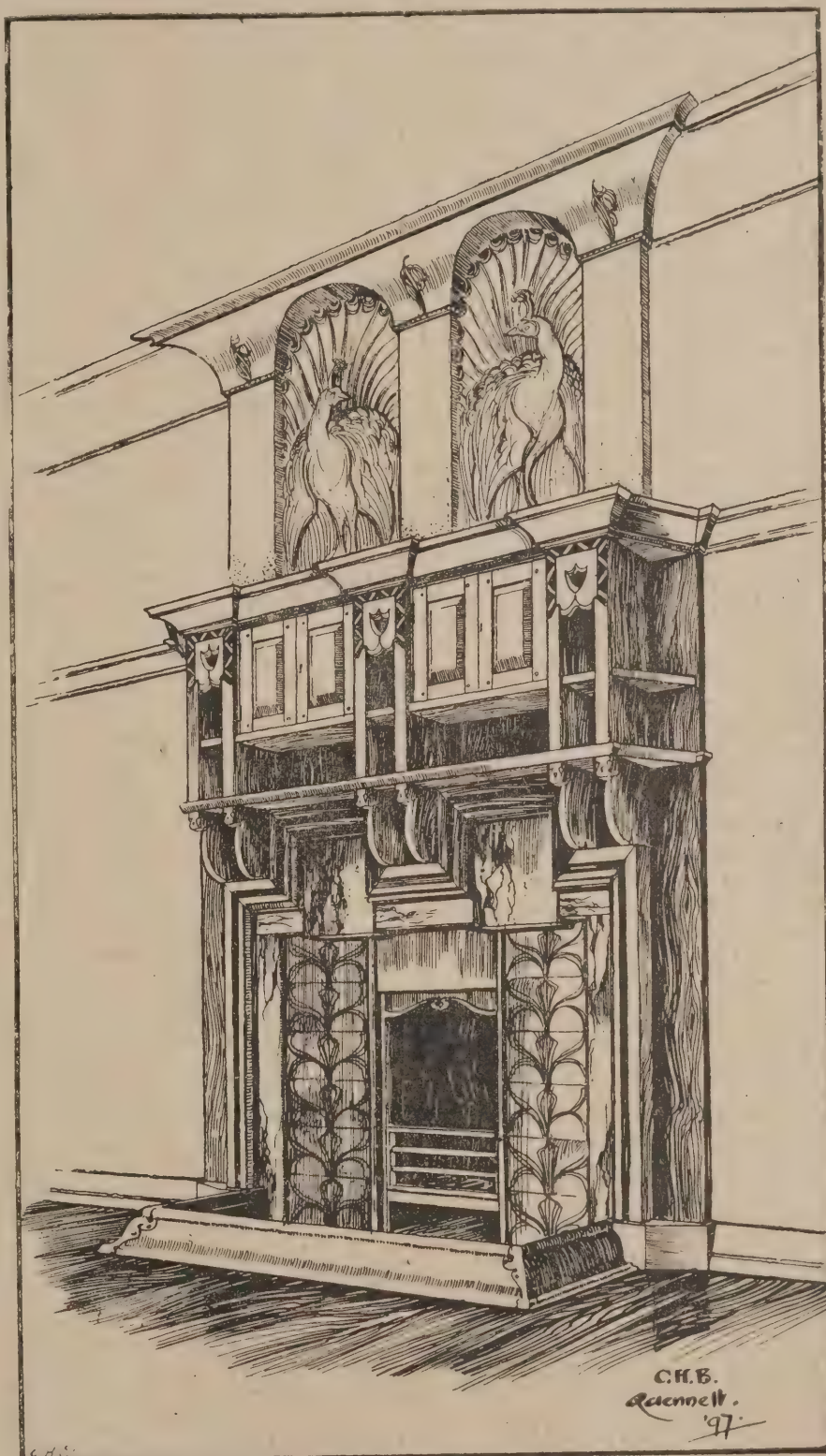
Painters of architecture. A BUILDING or collection of buildings, whatever purpose it serves, is something which meets the eye, and whether it elicits or gives pleasure must tend to develop the architectural sense. Where the population is densest the contrasts must be the most startling. Put the case of our English cathedrals and the towns which have grown up around them. Mr. Hine it appears has lately painted them all, and the results of his—and of Mrs. Hine's—studies are to be seen at the Dowdeswell Gallery, where a collection of drawings of "English cathedrals and their Towns" is on view. Does the public require the writer to say exactly how they compare with others of similar kind, or may he be allowed for once to aver, avoiding the oath, that he has seen and enjoyed a great many? Looking back to past masters for examples of what architectural paintings should be, he finds Samuel Rout in the front, and, returning again to the present, the name of an artist occurs whose works contain in themselves the quintessence of Ruskin's preaching and Turner's practice. Whoever visits the Gallery will discover the artist's limitations at once. In his case, as in that of more eminent painters, they are things to be taken for granted. There are poetical aspects of churches and towns to which he is keenly alive, and has often successfully rendered. It is, then, not the landscapes to which buildings or indications of buildings are incidental, that we must thank these two painters, for "contraptions" of brick and mortar are inseparable from our modern conception of life, and there is no peace so profound as that which is felt in the time-hallowed precincts of cathedral churches and abbeys. So, leaving the details to the photographer, the artist may surrender himself to the mood of the moment. If not music there is at least its equivalent in the silent song of the poet-painter. Mr. Hine, it may be because he is not alone in the world, would appear to be most familiar with the unmiest aspects of things, and this is not remarkable considering the miseries due to our climate which the landscape-painter must suffer during three parts of the year at least. We could mention the name of an artist whose "snow scenes" are invariably painted in summer, and who, with his green umbrella, excites mirth in the heart of the country. There are none of them here, however, and Mr. and Mrs. Hine would seem to have been favoured, or blest, with protracted spells of warm weather. Excepting Ripon and Chester there are views of all the cathedral towns. Mrs. Hine's compositions are generally compact and well disposed. In colour she attempts less than her husband, and this imitation distinguishes her paintings from his. She draws at least as well, but drawing has been suggested or said is not their strong point, and there are cases, not a few, in which the want of precision is painful. In the paintings which are most strictly architectural, such as the views of Lichfield and York from the West but little is wanted but the mere fact of the matter,

and here the photographer has the advantage. The camera, though only a sun-trap, may be useful on occasion to the would-be architectural painter. In the Exhibition of the New English Art Club, where least they might be expected, there are one or two paintings which would point the moral of the foregoing remarks, and also adorn the tale. The drawing of the Church of St. Theodore, Athens, by Miss Mary Hogarth, exhibits, in the opinion of the writer, the perfection of architectural painting. While perfectly true to the fact, and forgetful of self, the painter is yet aware of the artistic worth of the subject.

PICTURES AT THE ROYAL ACADEMY.

SECOND NOTICE.

PROBABLY the best way of conveying to the reader a general idea of what there is in this Exhibition is to attempt a mental rearrangement of the collection, and let the pictures selected be regarded as the best of the class to which they appear to belong. In a sea-girt island like ours which is simply



A FIREPLACE. DESIGNED BY C. H. B. QUENNEL. MANUFACTURED BY J. P. WHITE, BEDFORD.

IN ILLUSTRATION OF "A PIECE OF FURNITURE."

The other, by Will Rothenstein, of Vezelay Cathedral, appears to be beyond praise. Here, indeed, is a picture, and yet the church in itself has hardly any external feature.

riddled with waterways the landscape is often a seascape as well, and the difficulties which beset the would-be methodical writer are not inconsiderable. As the hart panteth after the

water-brook the landlubber loveth the sea—or at least he pretends to—and the sailor in turn thinks of nothing so often as England's hills and vales. The girls he has left behind him may be held to account for this, but whatever the reason may be, we are near to being amphibious.

In so far as we are Celtic or Danish, we care less for merely pastoral scenes than the inhabitants of middle England, but the last are by far the most numerous, and their preferences must be respected. For them are the farmsteads and haystacks, the kine and the baa-lambs, the muck of the yard, and the duck-pond. To the Sun God, giver of life, the subject matters but little, and he glorifies all that he shines on. Love lieth in wait till he sinks in the west, and then there are "Twilight scenes" within! How many in this particular place we have not as yet ascertained, but the rooms would seem empty without them, and because Nature's aspect at evening is familiar to all we may be sure that they are not as a whole ill-painted.

For the delectation of the typical Saxon, we have imported our painters from France, and have Englished the art of Millet and the rest of the Barbizon school. There results a good deal of uncouth realism, but taking this along with the rest there is much to be thankful for in their contribution. Perhaps Mr. Wetherbee's paintings may be taken to represent the new school at its best, and it is natural in this connection to think of Adrian Stokes, George Claussen, William Padgett, La Thangue, and others. Turn we now from the land to the sea. There would be reason for shame, indeed, if we had not marine painters in almost infinite numbers, and amongst them the very best. Where so many are more than good it would be exceedingly hard to particularise, and within the limits of space it cannot be attempted. Mr. Bernard F. Gribble's great battleship, No. 433, is justly considered a most splendid work of its kind, and in striking contrast with this is Mr. Tuke's "Idyll," showing miles of the bluest sea.

The proportion of portraits must always be large, and, as love of the subject but seldom inspires the painter, we hear a great deal more about the exquisite Art than about the people depicted. The portrait of Johannes Wolff, Esq., by John S. Sergeant, R.A., is his most triumphant achievement. There are portraits of ladies here who remind one of Wordsworth's "Lucy"—"a maiden there were none to love, and very few to praise"; but the purse has secured the work, and the artist has done his best. A pity it is that the noblest and loveliest can be painted so seldom! The most beautiful and absolutely faithful portraits of children are those by J. Sant, R.A. One wonders that work of this quality can still be produced by a painter who, for at least fifty years, has been a most constant exhibitor.

Mr. Richard Jack—we judge by his fascinating "Circe," and by the "Portrait of a Lady," No. 200—is certain before very long to be ranked with our greatest painters. The former is certainly one of the loveliest possible creatures, but as a whole the painting wants something; a little more work, perhaps, that, when it came to be added, would in no way exhaust the painter. There are *lacunes* between the outbursts of impulse, and leisure for after thoughts. "Dorothy," the daughter of W. H. Kendal-Grimston, Esq., must take her place with the few that are perfectly pictured. The portrait attracts, as well by its delicate bodily grace, as by the subtle, semi-serious, amusingly sweet expression which the eyes have lent to the face. The painter is George Boughton, R.A. Before leaving the subject of portraits let "Summer," by Alfred Hartley, be mentioned, and No. 325, as Mr. Orchardson's best—a portrait of Mrs. Pattison.

We are lingering here in the Fifth Room, where "The Thurifer," by Miss Josephine M. White, was noticed with very great pleasure. In the Sixth Mr. Kennington's "Diana" is pleasing on account of the harmonious disposition of the principal figures, the reality of their ample forms, and the easy command of his art which the painter displays. Mr. Harold Swanwick's "Old Farm Yard" should have been mentioned just now when we were speaking of landscapes. If M. Carolus Duran is to be allowed, to the exclusion, perhaps, of others, to exhibit things like his portrait of the Duchess of Warwick, it should be seen whether the terms of our Extradition Treaty may not be made to apply to his case. The mood passes, however, for the painter, as everyone knows, is clever enough, and we presently come to a much better picture of his, "Madame Feydeau and her Children" (483).

In Room No. 7 the pictures of simple life are the best. In this department of Art the English painter who received his first inspiration from Holland is as nearly as possible perfect. The spirit which breathed in Morland and Burns inspires all our best painters and poets, and if we light upon anything that smacks not of the court or the studio, we may be sure that the intention at least is right. The best beyond doubt in this room are "The Cousin from Town," by Walter Langley, and Arthur Barrington's "Fortune Teller." The two works in point of style are as different as possible, but good work is good work, and it happens to be all that we care for. The principle by which we are guided, if it deserves so lofty a name, should be tolerably clear by now, and we may be allowed to indicate briefly the paintings which prove most attractive. Most certainly, one, in Room 8, is "A Fairy Tale," by J. Harland Fisher. It may do the artist good to be told how children love him for this. No. 597, by Walter Osborne, a picture of wife and child, and by the Hon. John Collier, "Trouble."

In Room No. 9 there are two, and probably more, to be noticed. Those who have known Dudley Hardy before, but only as a humorous pen-man, will be astonished, perhaps, to find him here represented by paintings in oil. The first, No. 721, reminds one of a similar painting at Dulwich, which is attributed to Brekelenkam, the Dutch master, and yet more of the modern man, Israels. And this is the same as saying that the painting, in point of treatment and style, is simply a perfect work.

Another most perfect picture which, by virtue of something indescribable, is strangely attractive, is the "Beryl Stone," by Hannah Myers, No. 772. There are other good things to be noticed, but a portrait study in the manner of Rembrandt comes last on the list, No. 328, by Ursula Wood. So modern it is, and yet so exactly like Rembrandt's own Saskia, that we seem to be with her again. It is the work of a painter undoubtedly clever, for Rembrandt was thought inimitable, and we like to imagine her laughing.

It was intended to conclude with a notice in brief of the sculpture, but time has not allowed, and the reader is offered instead our opinion of a single painting, the subject of which being "Sappho," No. 307, might well have attracted the sculptor. Whether we speak of the painter's style or his draughtsmanship, there is probably no abler nude study than this. But is it not better to know what her fate was than to attempt (in the manner of Doré) to realise the condition of the prostrate form that Death claimed when the crags received it? E. R.

ALL SAINTS' CHURCH, Matlock Bank, is to have a reredos, to cost £200, and a memorial screen, of lacquered brass, also to cost about £200.

AUSTRALIAN CAVES.

THE cave systems in Australia annually attract considerable numbers of visitors. The principal caves, those at Jenolan, are easily reached by rail from Sydney, and are the most largely frequented. They are of vast extent and singularly attractive, being remarkable principally for their stalactitic and stalagmitic formations. Among others may be cited the Bell Cave, whence the Belfry, as it is called, is reached, where are six singular stalactites hanging closely together, which, when struck, give out sonorous musical tones resembling a chime of bells; the Lucas Cave, a series of large chambers connected by narrow passages, whose principal features consist in stalagmitic formations of very massive form, a pool of exceeding clearness, a large white mantle beautifully folded, fine "shawls" of semi-transparent stalactite, and

SOME VERY PRETTY PILLARS;

the Imperial Cave, 500ft. high, with its swiftly running underground river, one of the most sensational of cave sights; the Easter Cave, the most beautiful and grandest of them all, and numerous others. There are also several remarkable rock formations in the immediate vicinity of the caves. Among these is the Devil's Coachhouse, a sight which many think finer and certainly more impressive than any of the underground ramifications of the caves. There are also the Grand Archway, the Carliotta Arch, a beautiful natural archway with its span ornamented with stalactites, the Meeting of the Greeks, the Pinnacle Rock, and adjacent woodland scenes. In the Wellington Caves some 250 miles from Sydney, the Breccia Cave is the principal feature, being rich in palaeontological remains, the red ceiling, walls, and floor being literally studded with the white bones of the carnivorous Thylacines and the herbivorous forms on which they preyed. The Yarran-gobilly Caves are situated in the mountainous district lying to the south-east of the colony. Among the many beautiful sights in these are groups of yellow, pink, and green tinged

STALACTITES OF IRREGULAR FORM;

a pillar of stalagmite 8ft. high; a group of stalagmites, which, forming a single mass at the base, gradually taper and separate, until only the central stalagmite reaches the roof; a forest of pillars formed by the union of stalagmites and stalactites, between which are stalagmitic basins full of water; a beautiful mass of stalactites resembling a frozen waterfall; and a chamber, the stalagmitic formations in which recall to mind the spires and turrets of some grand cathedral. The Belubula Caves are situated in the Bathurst district, and are entered by descending vertical pits and proceeding along narrow passages studded with stalactites, the leading feature including a phenomenal stalactite upwards of 6ft. in diameter and 18ft. in length, deeply fluted and resembling the pipes of a large organ; a display of beautiful white stalactites of varying lengths dependent from the ledge around the wall, suggesting the idea of petrified cascades; a couple of stalagmites 18in. in diameter and 6ft. high, pointed at the apex, conjoined at the base and rising from a conical mound of the same formation; some beautiful curtain-stalactites descending from the roof in drapery-like folds gracefully disposed; a white floor with

ORNAMENTAL CAVITIES

filled with clear water, and walls sparkling with calcite crystals. The Wombeyan Caves near Goulburn, are similar in character to those at Jenolan, with which they are supposed to be connected, forming a subterranean passage through the heart of the Blue Mountains. The principal of the Bendithera Caves resembles an immense straight drive into the mountains, and is about 250yds. in length, averaging in width and height 40ft. and 50ft. respectively. Some very fine specimens of dripstone formation, mostly massive, are met with, among which may be mentioned a large slab of calcite, over 20ft. in height by 4ft. wide, and 2in. thick, projecting from the wall in the form of a screen.

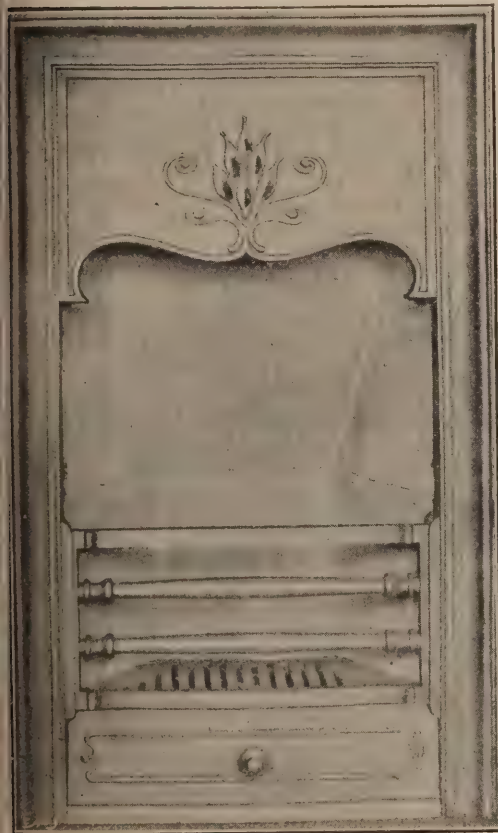
A PIECE OF FURNITURE.

By G. LL. MORRIS.

A PIECE of furniture, like every other inanimate thing on which the hands of man have lingered should have, as it were, a soul of its own, derived from the soul of him who fashioned it, to bear lasting witness to the personality of its maker—his intelligence or his stupidity. Sometimes the soul is beautiful; sometimes it is ugly; sometimes it appeals to us with open frankness; sometimes it is full of subtlety and elaboration of concealment. The furniture of the typical suburban residence, for instance, seems to have entered into the conspiracy of its owners to "keep up appearances," as the prime object of existence. Pretentious overmantels from Curtain Road seemed to have been mainly designed as dust-traps for the torment of the conscientious housemaid. Everything that it is possible to drape is swathed in silk, from the piano to the flower-pot and the photo-frame, as though the simple shape of things were something of which to be ashamed; the crowning triumph and pride being an ingenious contrivance by which some article has been constructed to deceive the beholder into supposing it to be something else, as when a receptacle for coals apes a shiny, polished book cabinet. Almost equally disturbing is

in William Morris's delightful description of the pothouse in "A Dream of John Bull."—"A quaintly carved sideboard held an array of bright pewter pots and dishes and wooden and earthen bowls, a stout oak table went up and down the room, and a carved oak chair stood by the chimney corner. . . . That, except the rough stools and benches on which the company sat, was all the furniture. The walls were panelled roughly enough with oak boards to about 6ft. from the floor, and about 3ft. of plaster above that was wrought in the pattern of a rose stem running all round the room, freely and roughly done, but with (as it seemed to my unused eyes) wonderful skill and spirit. On the hood of the great chimney a huge rose was wrought in the plaster, and brightly painted in its proper colours." In this little scene we are far away from modern pretentiousness and artifice, and all the articles described match the lives of the people who use them. *Naïveté* and simplicity are the chief characteristics of mediæval furniture. It is fresh and individual, and often gives one the impression that the craftsman was his own designer, and free to work at his own sweet will. The wood is jointed without concealment in a perfectly natural way. The cool and quaint devices used to overcome difficulties in construction are innocent of deception. Sometimes they might be called unscholarly and even childish, but they show a delightful freshness and resource, and are as frank and straightforward as the social life of the period—direct and unashamed as one of Chaucer's tales. It is only later, as Mr. H. Shaw says in his "History of Decoration in the Middle Ages," when the progress of civilisation tends to make articles of daily use objects of luxury, that we are unable to follow the workman, and to see, with brief examination, just how the article is put together. In the early examples everything had to be done by the ingenious and masterly use of few and simple tools, and beauty of form and execution was instinctively and spontaneously obtained by the way, so to speak. It was rather as a natural growth than something deliberately planned and striven after. Nowadays conditions are altered, and much of the *naïveté* which is charming for its own time and place would be a foolish affectation in modern days. One principle still holds good, however. The requirements and purposes of your building or furniture must make the basis of the design; the design is not to be a foregone conclusion to which the use and convenience of the objects themselves are to be wantonly sacrificed. It is this principle which lies at the base of all true style in Architecture, furniture, and in dress. It is, therefore, foolish to hark back in slavish imitation of what served the purposes for which they were intended admirably several hundred years ago, but which cannot meet the very different conditions of nineteenth-century life. As Mr. Halsey Ricardo tells us, in his Arts and Crafts essay: "That tables and chairs should have lasted a hundred years is indeed proof that they were well-made, and that the conditions of their making were better than they are to-day. Such a re-creation as their due let us hasten to offer. But to take advantage of their survival to increase their number by facsimile reproduction is to paralyse all healthy growth of manufacture." Unfortunately the machine offers a fatal facility for the production of imitations, whether old or new. Cheap and nasty floods the market, and the prevalence in every class of dwelling of imitations whose poor rickety skeletons support a prodigious polish for a brief and fading day, is, perhaps, less due to the taste of the public than the will of the manufacturers. It is the *fiat* of these latter despots which has also decreed "fashions" in furniture, and the fact that such "fashions" exists is surely indicative of the restless and uncomfortable lives of people whose furniture, like everything else, is in a whirling and chaotic state, and whose very armchairs are so unadapted for the use for which they were intended that they can relinquish them almost without a sigh. The conditions of machine production do not, as has been often pointed out, conduce to a high level of intelligence in

the average artisan, and the designer of furniture should bear this in mind to be successful. He must find out the simplest and most satisfactory way of shaping the component parts of a given article; on the one hand, that it may be reasonable in cost; and on the other, that the workmen may be able to make it. Only by such measures can he hope to modify the stupefying sub-division of labour that is entailed in the production of ordinary goods from the warehouse. Some readers may be inclined to cast a reflection on the workman who is unable to design and execute articles that would have been readily undertaken by his mediæval brother. It should never be forgotten, however, that the machine has placed him in a position of mere



A FIREGRATE DESIGNED BY O. B. BRYAN.

MANUFACTURED BY BRATT, COLBRAN AND CO.

the house of the gentleman with antiquarian tastes, who, with a holy horror of Tottenham Court Road and all its works, encourages quite other forms of commercial duplicity. Along with some undeniably genuine pieces of old furniture, he will possess carved oak sideboard and coffer of a suspicious blackness which has more to do with the action of chemicals than the flight of ages; and nearly every chair and table will be a slavish imitation of something "old," without regard to the fact that it may be quite unsuited to modern needs. From so much insincerity and affectation it is a relief to turn to some simple cottage interior, where every article stands in direct relation to the purpose for which it was fashioned. Everything is honest, straightforward, in its place, as



A CLOCK DESIGNED BY E. A. RICKARDS.

subservience, in which he is only the supplementary "hands," called in to supply the offices it is impossible for mechanism to perform. The more elaborate the piece of work, the more machinery and the more hands are employed in its manufacture, and the more unsatisfactory its final effect. As it stands before us it is uninformed by any harmony of thought or feeling. It is merely a soulless conglomeration of pieces of wood fastened together. But we have only to look around us to assure ourselves that a healthy reaction has set in against this slavery to "commercialism" and the machine. An ever-widening section of the public is eager to reject the works of Tottenham Court Road, and to substitute in their place articles that are at one and the same time fit, durable, and beautiful. The fact that there is a growing demand for furniture of the character of that depicted in our illustrations is significant of a spreading demand for real beauty in the homes of many. But the change has to be gradual. We must not grieve too much if chairs and tables such as these are sometimes found in the incongruous company of the ordinary suite. In a stage of transition we must sometimes expect to see beautiful furniture ignobly housed, just as beautiful houses are too often spoiled and desecrated within by glaring anomalies in decoration and upholstery. We may hope that time may remedy this want of harmony, and that the homes of the future may be delightful without as within. In all periods of transition with regard to every branch of Art, there is always danger that



REPOUSSÉ DOOR PLATES. REPOUSSÉ COPPER PANELS.
DESIGNED BY O. B. BRYAN. MANUFACTURED BY BRATT, COLBRAN AND CO.

new departures may be overlooked and neglected. Albert Jacquemart, in his "History of Furniture," warns us that valuable specimens of furniture are frequently set on one side. Originality in furniture, as in other things, is in direct relation to new forces in social life, and we shall do well to keep open minds, which will not hastily dismiss new, and it may appear at first sight startling, designs as mere fantastic aberrations, until we have satisfied ourselves that they are not significant of some new manners and customs, or a real re-awakening from within.

Some of us may perhaps remember the story of the unhappy manufacturer who, having warehoused his furniture on the bank of a river, arrived one morning in a time of flood to find his chairs and tables chairs and tables no longer, but a floating conglomeration of pieces. Let us hope that in a not very distant future the tide of public opinion will turn, and show itself just as inimical to the modern makeshift—glue, and that the intelligent craftsman may again come into the kingdom usurped from him by that enemy alike of beauty and durability—the machine in its abuse.

THE "West Australian" and "Niola" have arrived in London, the former with 501 loads of Jarrahdale Jarrah, to the order of McLean Bros. and Rigg, Ltd., 1, Fenchurch Avenue, London, E.C.

In the Consistory Court, the Vicar of St. Mary's, Hendon, has been granted a faculty to remove the gallery over the north-east chapel of that church, and for the erection of a stained-glass memorial window in the chapel.

An inquiry has been held by the Local Government Board into an application of the Darton Urban District Council to borrow £11,500 for the purposes of a sewerage scheme for which plans had been prepared by Messrs. Radford, engineers, Nottingham.

THE new buildings at the London School of Medicine for Women include a large block of laboratories, class-rooms for physics, chemistry, physiology, and anatomy, and smaller apartments for the use of teachers and for private studies and investigations. This addition is but the beginning of a large scheme, to be realised in time, by which the school hopes to have a really handsome and commodious pile of buildings.

LOCHES:

ITS CHURCH AND CASTLE.

LOCHES, with its castle towers and pinnacled church rising amid the masses of foliage which clothe the hill on which it stands, is of especial interest to an English traveller. The massive keep of its castle has often had pointed out its resemblance to the Norman keep of Rochester. The two structures were both built in the latter half of the twelfth century, the one by the side of the Medway some twenty-five years earlier than the other, beneath which flow the waters of the Indre. On my way from the riverside to

the castle (writes a special correspondent in the East Anglian Daily Times) I pass by the Tour St. Antoine, once attached to a church which has been destroyed.

THE TOWER,

which is of the period of the Renaissance, is now used as the town belfry, though it retains its ecclesiastical name. From the foot of the tower I ascend the Rue du Château, on either side of which are interesting houses of the same period as the belfry, until I reach the outer walls of the castle enclosure. This is of vast extent, the circuit of the walls being a mile and a quarter long. I pass through an arched gateway, and speedily see on my left one of the various groups of buildings that are within the castle precincts. At one end is a round tower, connected with a turreted Gothic structure, associated with the name of Charles VII., in contact with which, at its further end, is the Renaissance château of Louis XII., now used as the Sub-Prefecture of the department of Indre et Loire. I wander on to see the great keep, and La Tour Ronde and Le Martelet, two fifteenth century towers, within which it is possible to descend to gloomy dungeons, the gloomiest of all being the lowest or fourth story. In these Louis XI. took delight in keeping in hopeless activity those who attempted to thwart him in his wily policy, and his successors also made the like use of them for those who were traitorous or hostile to them. Within the castle precincts is

A REMARKABLE CHURCH,

which is of unique interest, not only among all the churches of France, but also among all in Christendom. It is Romanesque in its main features; but in France many churches of that style of Architecture have domed roofs, while many others have roofs that are vaulted. If on the map of France a curve be drawn enclosing the area occupied by domed churches, and another be traced around the area occupied by vaulted structures, Loches is seen to lie at the point where the two curves are most nearly in contact, and St. Ours, the church at Loches, is the only instance that presents itself of what may be looked upon as a structure whose style is transitional, between the domed and vaulted varieties. Externally the church has at its west and east ends towers, surmounted by low octagonal spires, while between and in a line with them, in contact almost with each other and with them, are two octagonal pyramidal spires, springing immediately from the roof of the nave. Beneath these there are no ceilings, and when I stand inside the church I



HAND-PAINTED TILES, "THE CORNFLOWER."



HAND-PAINTED TILES, "THE HAREBELL."

DESIGNED BY O. B. BRYAN. MANUFACTURED BY BRATT, COLBRAN AND CO.

can look up into their sombre heights. These hollow pyramids, with the dim obscurity which veils their upper parts, are the chief peculiarities of this singular church. Beneath the western tower is a projecting rectangular porch, with an abundance of grotesque carved work, and with an ancient Roman altar, in shape a hollow cylinder, used now as a receptacle for holy water, though nearly fifty years ago it was described as being within the church and used as a font. What was once, however, associated with pagan solemnities has clearly undergone a transformation in harmony with the change which has come over human minds. In its present position it adds to the richness of the appearance of the magnificent portal. At the east end of the church is an apsidal projection, in which stands the high altar. Looking eastward from the portal, the succession of massive piers and arches, and the intervening stonework of the walls, have a very impressive effect. On either side of the church are curious side aisles, forming little chapels, entered by narrow doorways. The solemn beauty of the

INTERIOR OF THE CHURCH

has of late years been marred by the rearing up of a huge imitation grotto of Lourdes, in pasteboard and plaster. This, with its tawdry decorations of paper flowers, must shock the taste of those who come to look at the church, which in all its permanent features is so impressive from its strangeness and singularity. From the sacristan's remarks I felt assured that very emphatic protests have been uttered by visitors to the church against the intrusion of the sham rock work into the foreground of the solemn splendour of the church, which has no other like unto it in the whole world. The tower, which is seen at the first glimpse of the castle buildings, is called "La Tour d'Agnes Sorel." It was built for the favourite of Charles VII., and in it she sometimes lived. She was held in singular esteem, both in her own lifetime and in the days immediately succeeding her own, by reason of the influence she exerted upon the king. She is said to have roused him from listlessness, and to have inspired him with the patriotic energy which enabled him to respond afterwards to the still more urgent appeal made to him by Joan of Arc. When she died in 1450 she was brought to Loches to be buried, and a beautiful monument to her memory was erected over her remains by Jacques Cœur. She bequeathed to the church at Loches 2000 golden crowns, besides jewels and tapestry; but these bequests could only be received on the condition that her remains should be

ENTOMBED IN THE CHOIR

of the church. When Louis XI. came to the throne he had the crypt of St. Martin, beneath the church, fitted up for him as an oratory. On one of his early visits to Loches after his accession, the monks—for the church belonged to a college of regular priests—suggested to him that Agnes Sorel's life had not been such as to justify her lifeless body remaining in a position so honourable as the choir of their church. Though Louis had always been unfriendly to the Dame du Beaute, as Agnes was called after her Manor of Beaute, conferred on her by Charles, he replied to the monks that they might place the remains elsewhere. "But," said he, "as you will then be no longer entitled to her bequests, you can restore them to me, especially as they are unworthy to be touched by such pious hands as yours." The monks thought it well not to carry their suggestion into effect, and so did not disturb the mouldering remains. In the reign of Louis XVI., however, the tomb was removed into the nave. Later on it was somewhat despoiled by Revolutionists, but was in 1806 restored and placed where it now stands, in the turret, which, in her lifetime, had been for Agnes an occasional home.

An inquiry has been held at Morley with respect to an application by the Town Council to the Local Government Board for sanction to borrow £40,000 for purposes of street improvements, £2600 for the erection of artisans' dwellings, and £400 for works of sewerage.

A BIRMINGHAM COMPETITION.

PLANS FOR A PROPOSED ASYLUM.

THE Birmingham City Council has just considered a Committee's report on the competition arranged for securing plans for the new asylum at Hollymoor. The Committee invited six firms of Birmingham architects to send in competitive plans, their names including all those who were known to have erected or altered asylums, and Mr. George T. Hine, of Westminster, was appointed assessor. The City Surveyor examined the plans, and reported as to the comparative cost of the designs, the differences proving to be not material, and Mr. Hine spent three days in Birmingham, and supplied a report, speaking in high terms of the merits of the plans as a whole, but stating that no one plan could be adopted without alteration, and discussing in more detail the three plans, with their accompanying descriptions, which he considered to be the best. He subsequently recommended for approval the plan marked "Forward," which proved to be that of Messrs. Martin and Chamberlain. The Committee now propose to authorise that firm to prepare the necessary plans for submission to the Council and to the Commissioners in Lunacy, whose approval is essential before any plans for asylums can be carried out. Mr. Hine's report is appended. He says the designs as a whole display unusual merit, making it evident that the competing architects have very carefully studied

THE REQUIREMENTS OF ASYLUM DESIGN

as well as the Lunacy Commissioners' "Instructions and Suggestions." He has, he says, rarely before advised in a similar competition between architects who are not all experts in asylum construction with so satisfactory designs to report upon. He discovered defects, not at first sight apparent, which made it evident that not one of the plans could be pronounced perfect, or that it could be adopted without some modifications. Whoever the selected architect may be, he must be prepared to remodel his design to some extent to meet the committee's requirements and those of the Lunacy Commissioners. Referring in detail to the plan marked "Forward," Mr. Hine says the administrative department is well arranged, with plenty of light and air, but the steward's stores, boiler house, and laundry are all in one consolidated block, which is not a good arrangement. The entrance and official block is to the north-west, in a fairly convenient position, but would be better if brought nearer to the centre, as this would shorten the main corridor of the approach, which is now common to both male and female patients. The patients' wards show more originality than he found in any of the other designs, and in some respects are very well planned. It is undoubtedly a good arrangement to have all the infirmary wards on the ground floor, but the disadvantage is that wards for more noisy patients have to be placed over them on the first floor. This would necessitate a fireproof floor over the infirmary, so as to ensure perfect quiet. A feature in this plan is the opportunity afforded for future extension, which, although not demanded, is provided for by two blocks which can, if necessary, be erected at any future time without detriment to the present asylum.

POLYCHROME CHURCHES.

By PROFESSOR MEISSNER.

LECTURING before the Belfast Art Society on Polychrome Churches, Professor Meissner referred to the supposed colour blindness in Art of the Greeks, pointing out that that assumption was by no means well founded. When Mr. Gibson's tinted statue of Venus was exhibited a storm of protest was raised by the votaries of this theory, yet it had been subsequently shown that the Greeks had a keen and artistic eye to colour. Greek sculptors studied and reproduced the nude in their works, but the Christian religion objected to the nude, and therefore in the works of the sculptors of the Christian era draped figures instead of nude were the rule. In an



A FIREPLACE. DESIGNED BY C. E. MALLOWS. MANUFACTURED BY J. P. WHITE, BEDFORD.

Early Christian group of the Crucifixion, for instance, the figure of the Saviour was represented as fully draped. The lecturer went on to point out the influence and value of colour in the Art of the Middle Ages, showing that it was used emblematically and figuratively as well as effectively in the application of Art to sacred purposes. In the interior decoration of the churches colour was employed freely, but at the same time judiciously and figuratively. The phrase "dim religious light" was essentially a modern one, for it was the modern glass, not the ancient, which caused dimness in the churches. The old style of glass admitted the light in all its purity. As showing the wonderful influence of colour in Art as applied to sacred purposes of the Middle Ages, the lecturer quoted from a work published by a priest of the Middle Ages, under the title of "Theophilus Presbyter," which gave minute directions to the architects of his day for the decoration of churches from the emblematic point of view. Every colour had its figurative meaning. Green was symbolical of youth, red of love, blue of celestial things, yellow of the baser passions of human nature, violet of wisdom, and black of things infernal.

INTERIOR LIGHTING.*

REFLECTED LIGHT ESPECIALLY CONSIDERED.

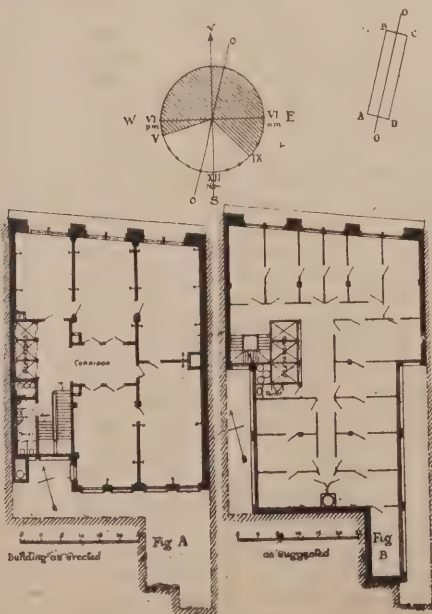
BY W. ECKSTEIN.

THE treatment of light, or the proper distribution of daylight to any building, is of greater importance than anything else, except, perhaps, drainage, and daylight assists largely in the sanitary conditions and cleanliness of all buildings, whether for offices or warehouses. It is a common saying that "dirt cannot stand light," and when it is borne in mind that daylight is available to all and costs nothing, it is a great pity not to utilise it to the utmost extent. This should be done by covering any particular site so as to obtain the best result from the open air and direct daylight, and to assist same by the use of artificial means or devices, such as reflectors, pavement lights, &c. Daylight necessarily is brought in through the windows, and the light that enters the room falls on the floor at an angle up to about 45 deg., where it is nearly all absorbed, and consequently does not produce the full effect that is required for all offices. The arrangement of windows, of course, lends itself to assist or detract from the result obtained, and it will be found well to keep the head of the window as near the level of ceiling as possible, at any rate, not to be more than 12 in. below it. The part of a window is practically of little effect if brought within 2 ft. of the floor level.

The window should be placed so as to give an equal margin of wall on either side as near as possible, and the length of an office should not exceed about twice the height of the head of the window from the floor, which in the ordinary way would be a limit of about 16 ft. to 20 ft. The general depth of an office should be taken about 16 ft., as beyond that distance light is not generally good, and the extra space loses value, and there is a point where the extra size or depth can only uselessly increase the size of an office, and not produce its proportion of rent. A useful rule for the size of windows is that not less than one square foot for every 85 ft. of cubic space, and not less than one square foot for each lineal foot between the window and opposite wall inside should be given. Of course, all such rules would be varied by circumstances, as to whether on the ground, first, or any other floor, and also from what direction the light can be obtained. And generally the height of a window may be half the depth of a room, less 2 ft., and the width of a window one-third the width of a room.

Good, pleasant daylight is of the first im-

* Paper read before the Architectural Association on Friday night.



portance, and there is a general difference of opinion as to the proper aspect for this. Some hold that only the north light is good, while others that no building is well planned that is not so arranged that there is a little sun in each room during a part of the day. The latter opinion is certainly the best, and although this is a difficult problem, when the irregularity of the streets and frontages in most towns, and the height of adjacent buildings near are so very variable, under all circumstances it is better to lay down what is the best direction for the daylight to reach the windows on any site, and this, of course, can be more readily arranged on a fairly rectangular site. The first point to decide is the best axis for the open areas or well openings. Take the average day, and suppose that the sun rises at six (see diagram), 6 E. will equal six a.m., and 6 W. will be six p.m. The usual hours of business are, say, from nine to five, and then the angle, 509, if bisected, will divide the hours of sunlight equally, and it is this line which should rule the direction of the greater length that open areas and well holes should have. This will be found to be 15 deg. east of north.

The open area or court should be made rectangular, not square, and lengthways, north and south. If the line O O be taken as 15 deg. east of north, a well hole should be formed as A B C D. A portion of sunlight (every day that the sun is visible at all) would go into all the windows in the walls, A B, B C, C D, during each day, and in some seasons reach the bottom of the well hole, and, at any rate, it would reach the maximum distance at all times.

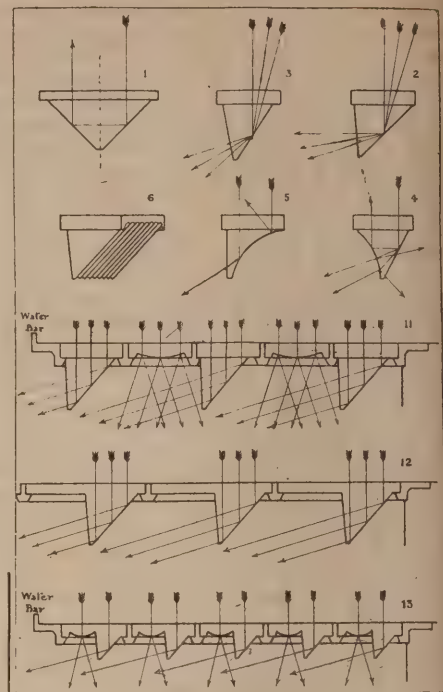
If you have followed this proposition carefully you will at once see that if in any town the roads have this direction of 15 deg. east of north, and the cross roads at right angles to them, then will be a great advantage. This is not often to be gained, but it has been noted that this happens to be near the prevailing direction in New York City, and the advantage must be considerable, although it will not be apparent to many.

Following up the proposition of the proper axis for open areas for obtaining the best and most useful daylight to buildings, I have taken the two sets of drawings and following remarks from the Architectural Record, December, 1893, and June, 1894. The conditions for a successful building for use as offices are:—

- I. Ease of access.
- II. Good light.
- III. Good service.
- IV. Pleasing environment and approaches.
- V. Maximum rentable area consistent with economy.
- VI. Ease of rearrangement to suit tenants.
- VII. Minimum cost with true economy.

The plans A and A A show two buildings as erected, and B and B B as it is suggested they should be.

For good light, experience confirms the statement that courts should have their long axis north and south. In the plan A it will be seen that the court is of irregular shape, but with the long axis east and west, and while the court area embraces 150 square feet more than in the plan B (as we say it should be), yet its service in lighting is decidedly less. The rentable area in B is apparent, and the fact that it is possible to have fourteen different tenants on each floor, instead of five as in A, is a consideration which would enhance



the value of the building, if erected as suggested. The arrangement in the plan B gives an area of 220 square ft., or about 10 per cent. more than in A. The other illustrations in comparison are made on the drawings A A and B B.

As to the arrangement for good light, it is generally accepted that the requirement is that every portion of the office should be within 20 ft. to 25 ft. of a window, and that that window should not open directly to the south. It is to be hoped that the disadvantages due to the direct south light to an office will soon be appreciated, and the advantage of a court or open area, with its long axis north and south, more fully understood. Offices, on a bright day, facing to the south have to have the blinds partially closed in order to reduce the glare from the sun, the consequence being the back portion of the office has to be lighted, possibly by gas or other means. The corridors in the plan B B, as suggested, would be sufficiently light with glass in the doors, and fanlights over. The comparison of these two sets of plans, showing buildings as erected and suggested, are presented as having a considerable bearing on the matter under discussion, and is also a subject in which architects in particular are so greatly interested.

Upon valuable sites, where the amount of available daylight is very limited, it is necessary that the least possible space be appropriated as mere open areas for light. To show the difference of opinions on this matter, Mr. Boulton, of Liverpool, compiled the accompanying table, which speaks for itself, comparing the different areas so appropriated in five different competitive drawings submitted for the new Stock Exchange, Liverpool, about fifteen years since. The plot was 49 ft. to Dale Street, depth 197 ft., back width 36 ft., and the total area 9195 ft., the only street outlet being Dale Street.

COMPARISON OF SPACE SACRIFICED FOR LIGHT.

Designs.	Basement.	Ground Floor.	First Floor.	Second Floor.
Argus	323 ft. 1 in 28'4	570 ft. 1 in 16'0	1030 ft. 1 in 8'9	1950 ft. 1 in 4'7
Grand Trunks	None.	4121 ft. 1 in 2'2	4121 ft. 1 in 8'2	4121 ft. 1 in 2'2
Shamrock	45 ft. 1 in 204'3	269 ft. 1 in 35'3	1822 ft. 1 in 5'0	3097 ft. 1 in 3'0
Coupon	None.	390 ft. 1 in 23'5	2283 ft. 1 in 4'0	2213 ft. 1 in 4'0
1877	None.	1186 ft. 1 in 7'75	1380 ft. 1 in 6'6	2859 ft. 1 in 3'2

It may also be useful to compare the rent-producing area shown:—

RATIO OF SPACE YIELDING RENT TO THE WHOLE AREA OF SITE.

Designs.	Basement.	Ground Floor.	First Floor.	Second Floor.
Argus	1 in 3'9	1 in 2'32	1 in 1'88	1 in 2'14
Grand Trunks	1 in 1'6	1 in 1'26	1 in 2'23	1 in 1'70
Shamrock	1 in 2'24	1 in 3'0	1 in 1'94	1 in 2'60
Coupon	1 in 1'76	1 in 2'30	1 in 1'75	1 in 2'35
1877	1 in 1'9	1 in 2'97	1 in 1'66	1 in 1'54

Notwithstanding the proper arrangement of well-holes and light openings in the lower floors, it is necessary often to assist the daylight by reflectors. These are so generally known, and their good effect so considerable, that it is only advisable to point out that where possible the reflectors should be fixed at the sill instead of half-way up the window, and be exposed directly under the sky, and the light should be thrown up to the ceiling of the apartment, and if this is polished in hard plaster it will greatly assist to distribute the light throughout the room. Where volume of light is required direct, light should be admitted vertically. The light passing through a skylight is very much greater than that through any vertical window, and consequently the light received from the horizontal pavement light is much stronger than from a vertical stall-board.

It is hardly necessary to dwell on the difference of reflection and refraction, but it should not be overlooked. All rays of light move in straight lines, and when they strike upon any object they glance off its surface, are wholly or partially absorbed, or pass through the object, as in a sheet of glass or a body of water. In the first place, the light is said to be reflected, and in the others refracted, because its course is partially diverted from the right line in which it left the luminous body, and its direction bent or broken back according to the difference in density between the two media.

The direction in which light is reflected depends upon that from which it proceeds; it is always such that a perpendicular to the surface at the place of impact bisects the angle formed by the arrival and departure of the ray. Each half of the angle represents the angle of incidence or the angle of reflection; those angles are always equal, and always in the same plane, one being known, the other is readily ascertained. The perpendicular is termed the axis of incidence, the first ray the incident ray, the other the reflected ray. It is by the reflection of the rays impinging upon them that objects become visible, and the reflective powers of the objects are very variable. At a perpendicular incidence, water reflects only eighteen rays out of every 1000, and glass only twenty-five, while mercury reflects 666. When the rays strike the surface obliquely, the reflection is augmented; at an incidence of 40 deg. water reflects twenty-two rays, at 60 deg. sixty-five rays, at 80 deg. 333 rays; while at an incidence of 89½ deg., where the light almost grazes the surface, it reflects 721 rays out of every 1000. Thus, as the obliquity increases, the reflection of water approaches and finally overtakes the reflection from mercury, but at no incidence, however great, is the reflection from water,

mercury, or any other substance total. Any beam of light meeting any refracting surface obliquely, it is obvious that one part of the beam will meet it before another; it is thus hindered in its motion by it as wind is hindered, but not stopped, by the trees.

Trace a ray A B (Fig. 41) to the refracting surface C D, marking off the assumed length of its waves by the transverse lines. The front will be retarded at E before it is retarded at F, and we may assume the retardation is such that the wave in the denser medium is only propagated to G, while in the rarer medium it reaches H. It is plain that the beam must swing round, but when the side F also reaches the denser medium at H, the whole will be retarded alike, and the beam will proceed as before, only slower and in a different direction.

As the beam emerges from the denser medium, the reverse of what has been described occurs, and, provided the refracting medium is of uniform density and thickness, the beam of light proceeds in a path parallel with its former course. In lenses and prisms the emergent beam takes an oblique path, and in the case of lenses either convergent or divergent (according to the kind of lens), and the position of the lens relative to the object. In Fig. 42 the upper side of the beam of light is still further retarded, and therefore the beam must swing round again, and pass out in quite a different direction to that of entry, so that a beam of light passing through (a prism) is permanently deflected. For example (Fig. 43), the sun viewed through a prism, as shown, will appear to the observer in a lower position; the light in this case is twice refracted—once on entering the glass, and again on leaving it.

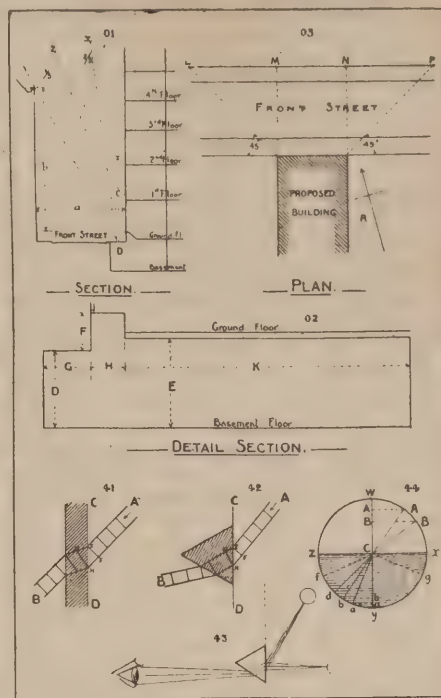
The principle on which the measurements of refraction are based was discovered by Willebrod Snell, and is explained as follows:—Let W X Y Z (Fig. 44) represent the outline of a circular vessel containing water, and X Z the surface of the water. When the ray is incident along W C, perpendicular to X Z, it is not refracted, but reflected on the same line; when it is incident along A C, it is refracted at C, and strikes the circle at a; when it is incident at B C, it is refracted to b. From the ends of the incident rays let A A and B B be drawn perpendicular upon W Y, and from the ends of the refracted beams let the perpendiculars a a and b b be drawn. Measure the lengths of A A and a a, and divide the one by the other, and there is a certain quotient. Divide B B by b b and they give the same quotient—that is the ratio between the sines of the angles of incident and the sines of the angles of refraction is constant. Snell found this quotient to be a constant quantity for each particular substance, though it varied in amount from substance to substance. He called the quotient the index of refraction.

According to Brewster, the index of refraction is—

For glass, two of lead to one of flint ...	1.830
Plate glass ...	from 1.514 to 1.542
Crown glass ...	from 1.525 to 1.534
Water ...	1.336

In comparing the lenses used in pavement lights I assume the index to be 1.5; therefore the angle of refraction, on entering glass from the atmosphere, is two-thirds of the angle of incidence, and on leaving the glass it is half as large again.

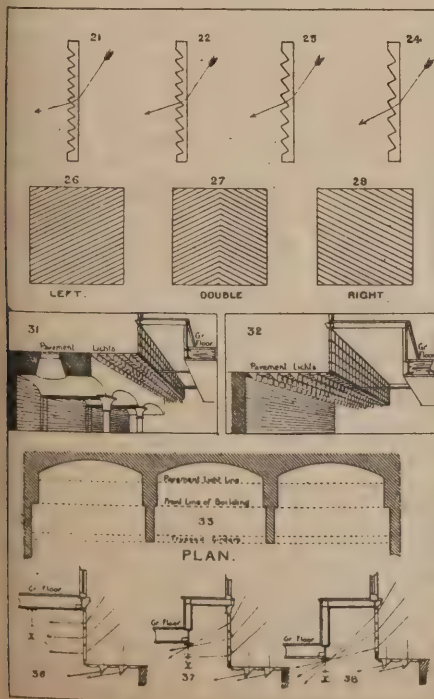
Referring now to the lenses and prisms that are most useful in pavement lights and stall-boards, shop fronts, offices, windows, &c., the first kind of glass probably used in decks or floors was undoubtedly the common "ship's deck light," which is a solid mass of glass with a flange all round to support same in the adjoining floor, and with a heavy drop or triangular wedge on the under side. Whether this drop was originally intended for strength, or for increasing and distributing the light, is doubtful; there is no doubt about the strength, but if you look at the lens on the diagram (Fig. 1) it will be seen that all the vertical rays are reflected outward again from the sloping faces on either side. We now take practically the same block of glass (which for our purpose is cut in two) and open it outwards, and you will at once see the



marvellous result, and it is this principle which has been the foundation of "Haywards' patent semi-prism pavement lights," Figs. 2 and 3. It will be seen that the vertical, or nearly vertical, ray is thrown out through the upright, or nearly upright, front of the lens at an angle a little below the horizontal, and the rays falling on the top of the lens at various angles (Fig. 52) are thrown out in a fan shape, and the steeper the back slope, with the nearly upright face a little more inclined (as in Fig. 3) projects the light lower than in Fig. 2. Of course, such an important result, which can be obtained from a series of prisms grouped in a frame as a pavement light and protected by a patent, has been attempted by various other devices or sections of lenses, as in Figs. 4, 5, 6, and 7. The result is generally bad, and that the makers of such lenses should have been given a certain amount of encouragement by architects using them shows to a certain extent the comparative neglect in deciding such an important matter as to which is the best kind of pavement light for producing the best illuminating effect in any building.

It will be seen, too, from sect. 11 that some thought is required in assembling the lenses in a properly constructed frame, so as to produce a satisfactory result. Section 12 is an attempted improvement on sect. 11, but unfortunately there is a great difficulty in making such irregular shaped lenses perfect, when one part is so bulky and another so thin, on account of the inequality of the glass and tension in the lens, therefore this lens in practice is a failure. This tension also limits the size that can be safely made. Fig. 13 is a neat arrangement of a small prism in each pocket, and may be often of use when the area of pavement light can be large.

Now, coming to the vertical lights used in stall-boards, or applicable to shop fronts, windows, &c. The lenses used are "Haywards' reflecting lens" (as in Figs. 21, 22, 23, 24), which are made at different angles to suit different circumstances. Such lenses are usually employed under the shop or office front, and the application is better explained in Figs. 36, 37, 38. In plan Fig. 33 and section 31 and 32, the combined arrangement of pavement lights and stall-boards will be clearly understood. It should be noted that if any girder be introduced (as shown in dotted lines x, x, x in Figs. 36, 37, 38) a very considerable portion of the light would be lost, and a heavy shadow would be cast along the ceiling. Pavement light should be supported by bearers transversely, and as little obstruction or thickness of metal be introduced at the junction of the vertical stall-board with the horizontal pavement light, and this is easily arranged by turning up the



back edge of flange as shown in sections 11 and 13, which is generally called a "water bar."

The frames of the upright or stall-board lights are sometimes made with rebates to the horizontal bars only or vertical bars only, and, in others, with a perfectly plain sectional bar without any rebate, with a small button at the intersections to retain the glasses in their position. See Figs. 39, 40. Diagrams E and F are general sections of a basement and front, in which it will be seen that a combination of several devices, as already more or less explained, can be introduced to such an extent, either single or combined, as may be desired. It will be seen that the upper portion of the windows can be glazed with the reflecting stall-board lenses, to throw the light to the back portion of the ground floor in almost a horizontal direction, or to throw the light slightly upwards on to the ceiling, and thereby illuminate the back portion of the office.

In the diagram (E) it will again be seen the great disadvantage of running any transverse girders or beams below the level of the ceiling across the direct line of light. These girders or beams would throw heavy and objectionable shadows, so that the ceiling, instead of being light and bright, would be shadowed, and the major portion of the reflected light lost. Under the stall-plate stall-board lights can be fixed vertically as in the window above, and in the pavement light, "Hayward's Semi-prism Lenses," fixed horizontally, and these pavement lights could throw the light on to a stall-board light, fixed as shown when a partition is advisable to divide off the front part of basement, and this would throw a volume of light into the basement. In the other sectional drawing, F, the ordinary daylight reflector is introduced at window sill on first floor, and near the middle of the depth in well hole a series of pavement lights and stall-board lights to throw the light all round same are introduced, the arrangement of lenses throwing reverse ways should be noted. It will be seen that one or two of these plans can be adopted with more or less advantage.

Many modifications suggest themselves to architects and others, and with the information called for in diagrams 01, 02, 03, the best arrangement can readily be worked out. It will be noted that when light is obtained from definite sources, it must be taken to act in some line of greatest volume, and referring to the diagram 01, the best light falling on the pavement light at "D" will be at about one-third of the angle made by the front of the building, and the line of light from the coping of the opposite building, or in the direction "x," and from the stall-board lights at about two-thirds, or as direction "z." Again, if the street is very narrow, and a high building directly opposite, the light can be usefully assisted by such lenses as Figs. 26, 27, and 28.

In all cases, the tops of the lenses of pavement lights and front of stall-board lenses should be plain flat surfaces and kept clean. However, ornamental effects can be given, but this is generally done with a proportionate reduction or waste of light. Also a more ornamental appearance can be given by tile inlays between the lenses of pavement lights, or a good foothold by a non-slipping material, such as lead, cement, facing, &c. Specimens and samples of such lights are numerous and difficult to show to advantage away from the factory, on account of their weight, and where also they can be seen in position. In conclusion, I would add that an effective result can only be produced with the fullest information being supplied, as in the diagrams 01, 02, and 03. They should be carefully examined, so that every advantage may be taken to fulfil the particular result desired.

The Chairman (Mr. Hampden W. Pratt), opening the discussion, said that the question of light, and what could be done by reflecting light, was a very large one, and there was no doubt it had not developed to anything like the extent to which it was possible. A subject like this was more interesting and more applicable to architects practising in a large city like London than in any other part. On account of the value of land in the City they

had very narrow thoroughfares, which naturally suggested the use of reflected lights. When they looked into the question, they found it was an extremely scientific one, and it required a considerable amount of ingenuity in order to work out thoroughly a scheme to obtain the best results from the use of the lenses. In the narrow thoroughfares of the City, especially where the buildings were warehouses and large places of business with large areas for lighting, there was, as they saw in the Cripple-gate fire, great sources of danger. If the question of reflecting light could be more closely studied, and reflectors used to the extent which they might be, there was a great possibility of doing away with these dangers. He had had an opportunity of visiting a building in the City, at Hill Street, Finsbury, where he saw reflectors employed on a scale that he had never seen previously, and it would interest architects if they went to see the premises. The system there would show what could be done, for the light the reflectors brought into the basement was really most remarkable. It was also claimed that the system adopted there could be used not only for basements, but for any other place in the upper part of a building by reflecting the light right to the back rooms, and so on. We had never used this system in this country in that way, but it had been carried out in Chicago to a large extent, where some of the finest buildings had been lighted in this way.

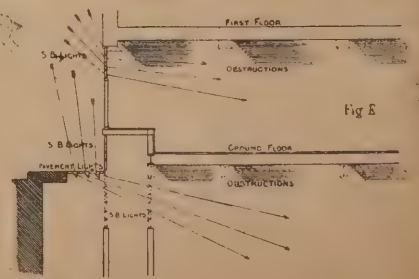
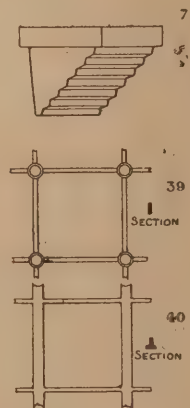
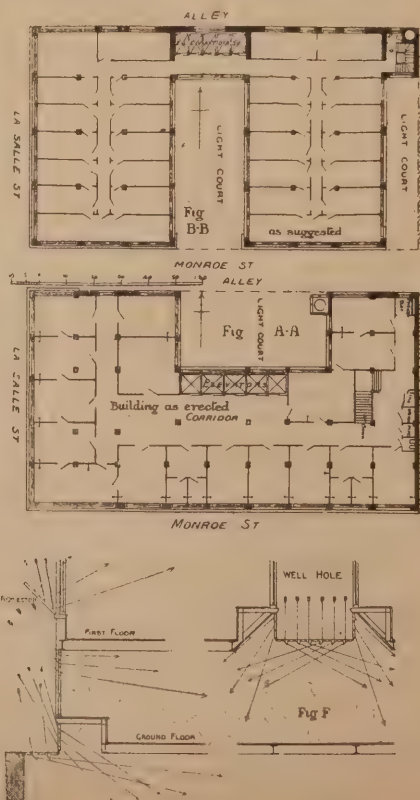
Mr. Banister F. Fletcher, proposing a vote of thanks to the lecturer, described the paper as being most valuable to architects, as it really amounted to a large extent to some practical treatment of the law of architects as affecting Architecture. The lecturer had given them a plan of areas as effecting the requirements of light, and referred especially to the two methods—one carried out and one suggested—for a building in Chicago. He happened to know the writer of the article quoted, and never could agree with his scheme. As suggested, the area was shown north and south. That, of course, was an excellent way when they could get it; but they had to work in areas as best they could. He had never seen the suggestion for using reflected light on upper floors carried out. He imagined it would be a very good treatment, but it would cause some inconvenience because of the necessary leaning of the lights.

Mr. F. G. H. Hooper, seconding, said the question of lighting was not confined to Architecture in the City, but it affected every building and window architects contrived. If

they compared the buildings street for street, they could realise some of the causes which made one street dull and another cheerful, and understand what led the fashion. It was novel, perhaps, to draw attention to Bond Street—which was such a favoured rendezvous—to compare it with a thoroughfare like Victoria Street. The one had an abundance of sunlight, and the buildings on either side enjoyed that advantage, while in the other the direction was east and west, and the sun struck down along it at very short intervals through the day. The lecturer had shown by the diagrams how the areas should be constructed if it was possible. Mr. Fletcher said the exigencies of many sites made it extremely difficult to carry out the principle exactly, but he (the speaker) thought if they had the principle in mind their plans might often be affected by the rules laid down by the lecturer. In regard to diffusing light, Mr. Eckstein had confined himself to two methods of lenses, which he had made a study of, and which were so much associated with his name. But no doubt many had noticed how glass with an irregular surface would distribute light in a room where clear glass failed to do it. The glass he had used of late was called mottled glass, and it was a very simple means of increasing the light in a small or large room where the window space might be small. If the clear glass was replaced by this with the irregular surface, they would notice how it carried out the rules the lecturer had illustrated, by conveying the light in certain directions and distributing it in many angles into the room.

Mr. Max Clark said he gathered from the remarks of the lecturer that he inferred stall-board lights were not so effective as floor lights. He would like to enquire what percentage of light was lost after six months traffic over the latter, and whether stall-board lights did become much more effective?

Mr. W. Eckstein, acknowledging the vote of thanks, said pavement light glass, of course, required cleaning. Although lenses did not require to be cleaned more than occasionally—say once a fortnight—of course, if they wanted light anywhere they must look after the glass a little. With reference to the wearing, he would like Mr. Clark to see the result of some lights that had been in use fifteen years. It was really astonishing to see the light they gave, after having worn down an eighth of an inch. They must bear in mind that the light came upon them vertically, and that was a great advantage.



Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
May 11th, 1898.

"I know what it is to live in a cottage with a cool floor and roof, and a hearth of mica slates; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but say this, emphatically, that the tenth part of the expense which is sacrificed in domestic utilities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the places to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Royal Academy contains 1967 exhibits; 105 oils, 250 watercolours, 199 miniatures, 12 architectural drawings, 161 pieces of sculpture, 139 etchings, drawings, and engravings, and the address presented last year to Her Majesty by the Academy. The number of contributors this year is 1298—984 of whom are men, with 1534 works, and 314 women, with 433 works. Nine Academicians and Associates have sent nothing to this year's academy, but the other R.A.'s and Associates are contributed about 200 works. Mr. Sargent has the distinction of having sent the largest number of contributions, namely, eight; while Messrs. Herkomer, Goodall, Onslow Ford, Hacker, and Macbeth sent six each; and Messrs. Brock, Oulless, Hemy, Shannon, and Vyllie five each.

THE most coveted position which any artist outside the ranks of the Academicians can aspire to at the present time is a place on the line in the Burlington House Exhibition, and here are few of the thousands of artists who have contributed works who have not seen a vision of their picture in that position and who consider themselves most hardly treated if they do not attain to it. All such have but a little notion how slender their chance is, or the amount of space which is open to them after the fifty painters who constitute the elect contribute have satisfied themselves. We were at the trouble this year, says the *St. James's Gazette*, to count the pictures actually on the line in two of the rooms, and mark who they were by. In the large gallery forty are hung; of these thirty-five are by members of the Academy, and of the remaining five three are by foreigners, leaving two for British outsiders. In the first room the total pictures on the line are twenty-eight, of which even only are by outsiders. The Academicians do not exercise their full privileges (Mr. Sargent alone shows eight works, and the fifty painters between them contribute an average of under four each), or there would be no space whatever on the line for outsiders.

THE old glories of Chiswick are rapidly departing. Not long ago the picturesque old red-brick Manor House was pulled down to make room for unlovely little houses; Chiswick House itself, with its memories of Fox and Lanning, has been converted into a lunatic asylum; while still more recently, Rupert House, which is said to have been the headquarters of Prince Rupert at the time of the battle of Brentford, has had to make way for shops. Now Mawson House, in Chiswick Lane,

not many yards away from the vanished Manor House, is about to become the Fox and Hounds public-house, the license being transferred from the adjacent building of that name. It was at Mawson House that Alexander Pope resided before he removed to Twickenham.

THE Prefect of the Seine has found it necessary to check individual enterprise in the building and decoration of Paris. He has appointed a technical committee of artists and architects, and other competent judges, to whom all plans affecting the aspect of the city must be submitted for approval. Surely, says the *Globe*, it is a body of this kind that London wants. Enormous sums and much architectural skill are expended on individual buildings in London, but they are designed and erected apparently without the slightest regard to the style of buildings which adjoin them, or the aspect of the whole street or place. Hence the general effect of the streets is poor, irregular, unimposing, and freakish. London might be a fine city, but it will never be so, however much money be spent on it, until regard is paid to the whole, and the caprices of individual taste or the dictates of the purse are controlled by an authority representing artistic and architectural requirements.

It was suggested at a meeting of the Welsh Calvinistic Methodist Association that a competent architect should be employed to inspect the plans of all new buildings, and it was pointed out that there was great need to pay attention to beauty as well as utility in the construction of places of worship. Everyone who has travelled in Wales must have observed the painful contrast between many of the chapels and their surroundings. Turning the corner of some delightful valley, the visitor continually comes upon a Zion or a Bethesda which suggests anything but the beauty of holiness.

THE Select Committee appointed to inquire into and report upon the administration and cost of the museums of the Science and Art Department have agreed to a first report, in which they state that they are unanimously of opinion: (1) That the whole area on the east side of the Exhibition Road (except that occupied by the Royal College of Science, which cannot be sacrificed except at great cost) be exclusively devoted to the art museum and the art library, with provision for the conduct of the business connected with loans of art objects and the art schools. They are satisfied that the whole of this space is required for the art schools, the due exhibition of the art collections, and the administration connected with such a museum; and (2) that provision for the whole of the science collection, the science library, for loans of scientific objects, and for the science schools be made on the west side of the Exhibition Road. They also unanimously recommend that the Geological Museum in Jermyn Street be no longer occupied for the same purposes as now; and that the collections there exhibited be removed to the west side of the Exhibition Road, and made part of the science collections.

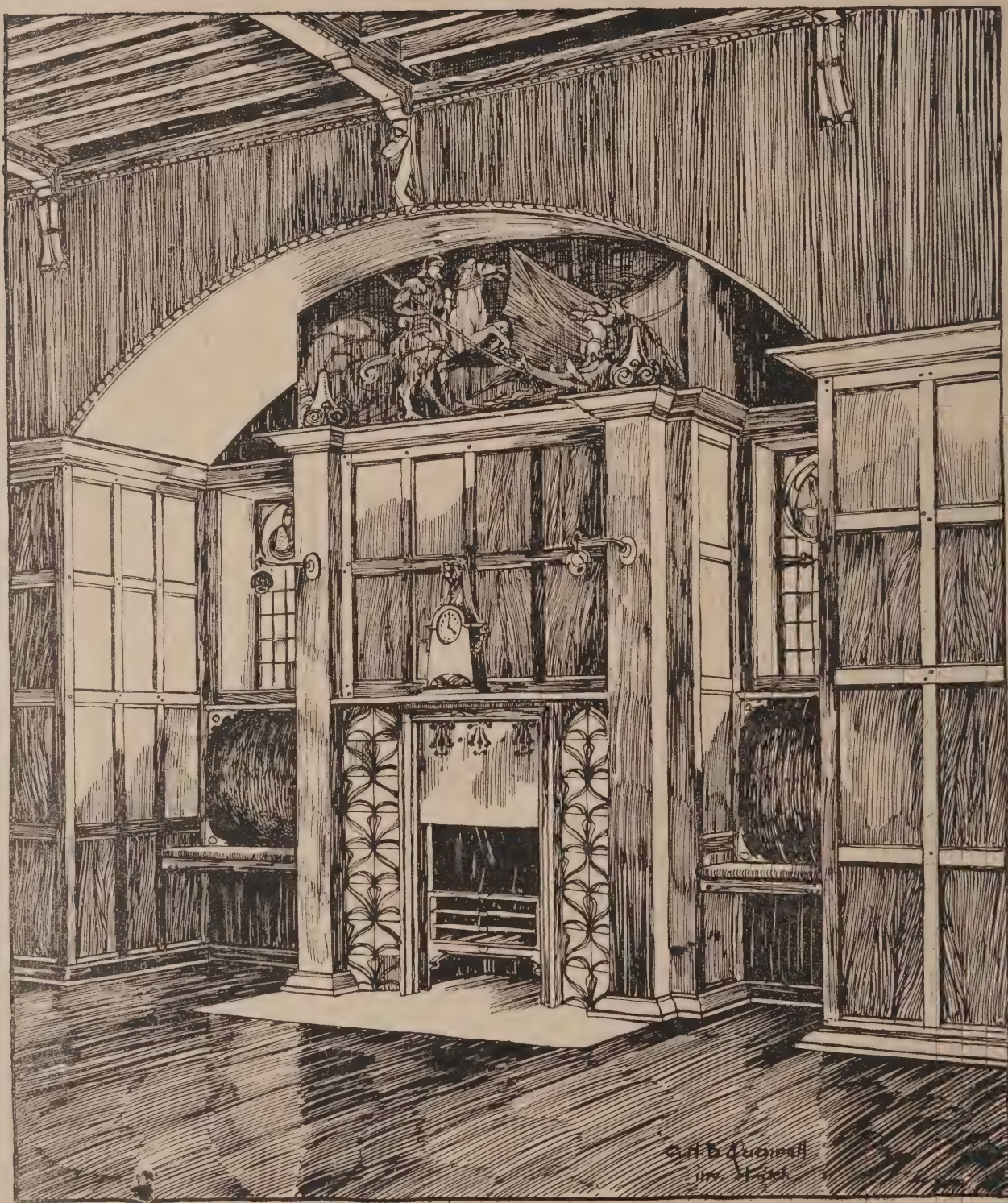
AT the Great Pulteney Street Galleries a beautiful exhibition of artistic furniture has been arranged by Messrs. Cooper. The most noteworthy feature is an entire drawing-room suite in the style of the First Empire. The tables, chairs, and sofas are of Spanish mahogany, decorated with elaborate brasswork in different classical designs. The handsome overmantel is of the same character. The framework of the mirror is perfectly plain but for the brasswork decorations. The influence of the enthusiasm which prevailed at the time for everything classical is plainly seen both in the design and decoration of the furniture. The chairs and sofas are upholstered in yellow brocade, with a wreath pattern. Among other interesting articles in the exhibition are the specimens of sideboards, cupboards, and other articles in the Old English style. These are made in oak, darkened in colour by a

process of fumigation, but not varnished or stained in any way, and hinges, handles, and ornaments are of polished copper. Some fine oak panelling is also to be seen. Among other antique treasures are a quaint Sedan chair, some carved Italian easy chairs, and a carved sideboard of the time of Louis XVI., with a heavy marble top. A number of beautiful examples of English silks and brocades show that the weavers of Spitalfields can compete successfully with the French manufacturers.

THE Lowther Arcade is to be sold at public auction this month. It will be offered, together with the two immediately adjoining houses on either side in the West Strand and two in Adelaide Street, in a single lot, at the Mart, by Mr. G. B. Smallpeice, in consequence of the death of Mr. William Bird, by whom it was leased from the Crown. The lease has yet rather more than thirty years to run, and the rental it produces is about £4000 a year. Of course, the future of the Arcade will depend upon the purchaser, and all predictions as to the ultimate occupation of the site—which range from a huge new store to a theatre, from blocks of offices to a restaurant—are purely surmise. The Lowther Arcade is not so old as its more fashionable rival the Burlington, which was built for Lord George Cavendish in 1819. Not till twelve years later was the one at Charing Cross set in hand, and was part of an immense scheme of improvement carried out under Lord Lowther, then Chief Commissioner of Woods and Forests, after whom it was named. Its architect was Witherden Young, and though probably not one in a thousand who visits it takes a glance upwards, it is not without a very considerable dignity and grace of outline. In length it is just 245ft., and there are in all five-and-twenty shops, each of which has a basement, a ground and first and second floors. London, however, has never taken kindly to arcades, and at best has accorded to them but limited favour. In Paris there are some twenty of them, many roomy, commodious, and popular as promenades, and those of Milan also are famed, but the old Exeter Exchange outlived its repute, and the only one that has been constructed of recent years is the very short one running from Bond Street to Albemarle Street. Brixton is, of course, the possessor of a handsome "Electric Avenue," which offers a pleasant possibility of studying the shop windows, independent of the weather, but for some inscrutable reason no arcade seems fated in this country to be for long a really favourite centre, either for business or for merely lounging, an art which the true Briton has certainly not yet acquired in Continental fashion.

THE long-promised new bridge at Kew is now on the way to become an accomplished fact. The local authorities, as well as the Thames Conservancy, have approved the Bill promoted by the Middlesex and Surrey County Councils, and the only opponent heard before the Select Committee was the West Middlesex Waterworks Company, which claimed an indefeasible right to lay pipes across the new bridge. The Committee unanimously found the preamble of the Bill proved, and rejected the demand of the water company.

IN the Consistory Court, an application has been made by the Rev. James Pulleine Thompson, vicar of Christ Church, Chelsea, for a faculty authorising certain alterations in that church. It was explained that it was desired to extend the chancel, to build a choir vestry and a clergy vestry and an organ chamber, to take into the church a space at present occupied by a porch, to construct two new porches elsewhere, to extend the front of the church, and to altar the galleries by lowering the front seats. There was also a proposal to build a church room on land adjoining the church given by Earl Cadogan. The alterations would cost from £3000 to £5000, of which £2500 was already in hand. The Chancellor decreed the faculty as prayed, being of opinion that the several alterations would greatly improve the church, and tend to the convenience and safety of the congregation.



AN INGLE FIREPLACE. DESIGNED BY C. H. B. QUENNELL. MANUFACTURED BY J. P. WHITE, BEDFORD.
IN ILLUSTRATION OF "A PIECE OF FURNITURE."



IN ILLUSTRATION OF "A PIECE OF FURNITURE."

In an article on "The Plumbers' Registration Bill" the *Lancet* says that "the amended draft of this Bill will, it is hoped, remove the regrettable opposition which the Bill has hitherto encountered. It is deserving of notice that the Worshipful Company of Plumbers have shown an unusual amount of public spirit in its promotion, and of tact in their endeavours to overcome opposition, and to present an effective measure thoroughly in accord with the wishes of the plumbing trade as a whole, while at the same time one which should meet the susceptibilities of other existing bodies interested in technical education. In a measure of this kind unanimity is essential to success, and powers are to be granted to the proposed Council to accept the examination of certain approved bodies as qualifying for registration, provided—and this is a most important clause—that such examinations shall include practical tests of workmanship in addition to theoretical knowledge.

EXCEPTION was taken last year to the constitution of the proposed General Council and to its assumption of educational functions, which objections are met by the present Bill. The Council in the present Bill is composed of master and operative plumbers elected under regulations of the respective Local Government Boards of England, Scotland, and Ireland, while power is given to the Council to appoint members from various sanitary, architectural, and other bodies, the following being mentioned in the schedule: the Incorporated Society of Medical Officers of Health, the Royal Institute of Architects, Ireland, the Royal Institute of British Architects, the Royal Institute of Public Health, the Sanitary Association of Scotland, and the Sanitary Institute, London. A measure, the object of which is one so closely associated with the improvement of the public health, is deserving of support from all sections of politicians. Unfortunately it is difficult to get the plumber taken seriously. He has so long been a target for weak and threadbare jokes that the most modest of wits is tempted to have a passing shot at him. It might, however, be well to bear in mind that there are hundreds of these men at work throughout the country, the result of whose daily labours means health or sickness, life or death, to thousands of their fellow creatures annually. The desirability of ensuring in them some measure of efficiency may surely be considered a matter worth serious attention."

MESSES. SOTHEY, WILKINSON, AND HODGE recently sold a collection of valuable engravings by masters of the English school, 121 lots realising the high total of £1216 2s. 6d. The more important were the following After George Morland:—"A Tea Garden" and "St. James's Park," by Soiron, in colours, margin relaid, £43; "Morning Amusement" and "Rural Employment," by J. R. Smith, finely printed in colours, 61 guineas; and the First of September "Morning" and "Evening," by Ward, finely printed in colours, £34 10s. "A Snake in the Grass," after Sir J. Reynolds, by J. R. Smith, finely printed in colours, £28. The following after G. Romney: "Mrs. Carwardine and Child," by J. R. Smith, first state brilliant impression, £116; and Louisa Lady Stormont, by the same, fine and very rare, £50. The following after J. R. Smith: "Thoughts on Matrimony," by Ward, in colours, £60; and a brilliant impression of "The Promenade at Carlisle House," £46; and a fine and complete set of thirteen, printed in colours, of "The Cries of London" series, after F. Wheatley, £300.

THE Executive Committee of the Imperial Institute are making arrangements for holding at the Institute an exhibition of apparatus and appliances for the generation of acetylene gas and its applications for lighting purposes. In order to ensure that no apparatus be admitted unless it has been proved to fulfil the requisite conditions of safety, the Council of the Society of Arts has appointed a practical committee to decide upon those conditions, and to lay down rules for the admission of apparatus. All apparatus intended to be shown in operation will be tested prior to admission. This is

intended to show which generators are so constructed as to be safely admitted to work at the exhibition, and does not imply any special approval on the part of the testing committee. It is intended that the exhibition shall commence on the first of June, and continue open until the end of August. Applications for space should be sent in at once.

At the Guildhall, before Mr. Alderman Smallman, Mr. J. Husbands, Basinghall Street and London Wall Avenue, was summoned at the instance of Mr. Edmund Woodthorpe, district surveyor for the northern division of the City, for that between December 21st, 1897, and January 5th, 1898, he did counsel and procure one James Atkinson Spencer, of Commercial Road, Lambeth, to contravene a section of the Building Act, 1894, by making an opening in the party wall used for the separation of 4, London Wall Avenue; James Atkinson Spencer, builder, was summoned for contravening section 77 of the Building Act by uniting 45A and 46A, Basinghall Street, with 4, London Wall Avenue.—Mr. Horace Avory, prosecuting on behalf of the London County Council, said the Building Act of 1894 was passed for the very purpose of protection from fire, and since the great conflagration in Cripplegate the importance of the matter now before the Court could not be over estimated. The complaint was that an opening had been made in these buildings—buildings which were not in one occupation, and so uniting what were practically two buildings, thus contravening the Act. Mr. Woodthorpe, the district surveyor, had been asked to give his sanction to this opening being made, but he had refused, and then, advantage being taken of the last Christmas holidays, a door was made on the second floor. No building could be so united legally except if it were wholly in one occupation or adapted to be so, and evidence would be given to show that it was not.—Mr. Edmund Woodthorpe, the district surveyor, stated that the whole of one of the buildings was in the occupation of Mr. Husbands, but the ground floor was tenanted by Messrs. Singleton and Bender. On December 21st he found a party wall had been made on the first floor, thus connecting Nos. 45A and 46A, Basinghall Street with 4, London Wall Avenue. He had never given his consent to this.—Mr. Elliot, on behalf of the occupier, contended that there was no uniting, because these buildings were practically one, and there was no party wall.—Technical evidence having been given, Mr. Benjamin Housgood, the original builder and owner of the premises, said they were built as a speculation, to suit either one or more tenants.—The case having been argued, the Alderman said: I find as a fact that these buildings were constructed and adapted so as to be wholly in one occupation, and therefore I shall dismiss the summons. I think the case has been very properly brought forward by the district surveyor and those instructing him, and under the circumstances I do not propose to allow any costs.—A second summons was adjourned for a week.

MR. JOHN CASSIDY, of Manchester, has just completed his statue of the late Ben Brierley, and it has been placed in front of the Museum in Queen's Park. The statue is in Portland stone, and is considerably larger than life-size. It represents the subject standing in what seems to have been a favourite attitude, the left arm raised and the right arm hanging by his side. In the left hand he holds some leaves of a manuscript, and his right hand rests on the papers which he has just put down on a block of stone. The right knee is bent slightly forward, and the head is erect. The figure is well posed, and has both dignity and character; there is an animated expression on the face, and the ugly modern clothes, especially the frock coat, with its stiff perpendicular lines, are treated unconventionally, so that with their creases and wrinkles they really help to make up a simple and natural portrait of the man as he lived. In making such a statue interesting from an artistic point of view, Mr. Cassidy has achieved no small success.

ST. ANDREW'S Roman Catholic Cathedral, Glasgow, which has so narrowly escaped destruction by the recent fire in that city, is over eighty years old. The building was begun in June, 1814, and was completed in 1816. At that time it was reckoned a very ornamental addition to the Architecture of the city. Whatever may still be said of the style of the structure, it is certain that if it had fallen a victim to the flames a more costly and more ornate church would have been erected in its stead. When the bishopric was restored, St. Andrew's naturally became the cathedral church of the diocese, over which the venerable Archbishop Eyre, formerly of Newcastle, now presides. It has only been during the present century that the Roman Catholics in Glasgow, since the Reformation, ventured to erect a place of worship of the architectural pretensions of St. Andrew's Cathedral.

At the International Art Exhibition at Vienna, British Art is represented by several pictures and drawings by artists of note among us. The chief works shown are Mr. E. A. Abbey's "Hamlet," Mr. Solomon J. Solomon's "Venus," Mr. Arthur Hacker's "The Cloister or the World," Mr. J. R. Reid's "Market in a Seaport," and "Foxhounds passing through a village," Mr. H. W. B. Davis's "Sheep in a Field," and other pictures by Mr. William Stott, of Oldham, Mr. Alfred Parsons, and Mr. Walter Crane. The whole collection of British work is well placed in a central position in the Exhibition.

A REMARKABLE feat is being performed at the Atlas Spinning Mills, Darwen. Some years ago the outside walls of the mill, which appeared to be constructed upon a foundation of sand, gave way, and the room floor and the machinery, &c., had a very irregular, switch-back form, work being considerably interfered with in consequence—in fact, some of the machinery was partly broken. When Mr. G. P. Holden, the new owner of the mill, realised the importance of this defect being remedied, he arranged with Mr. R. Shorrocks, contractor, to have the building placed upon a good foundation and the rooms levelled. A staff of men were set to work, and the process of dropping the building as it stood was commenced. In places as much as 11 in. have been cut from some of the bottom pillars, and the pillars above have been held up, along with the roof, by means of powerful jacks and packing. The whole of the rooms and the machinery have been lowered this distance without damage being done, and it is expected that the work of levelling the whole building in this manner will soon be completed.

SOME interesting discoveries have been made during the progress of excavations for the New Boveney Lock on the Thames, near Windsor. At the depth of 14 ft. the workmen came upon the bones and skull of an animal said to be a primeval ox, whose body had sunk with the movement of the quicksand, which is supposed to have undermined the bogland covering the area at that remote period. A skull and a flint battle-axe were also brought to light, the antiquities having lain buried, it is conjectured, since the Stone Age.

THE post of Keeper of the Royal Academy, made vacant by the death of Mr. P. H. Calderon, R.A., is regarded at Burlington House as second in importance only to that of the President. The Keeper is responsible not merely for the galleries of the Royal Academy and the pictures, ancient or modern, which they may happen to contain, but for the schools also, and the discipline and conduct of the students. Although the Keepership entails so many responsibilities, the post is a desirable one. The salary is £750 a year, besides a good house and studio. The Keeper's House stands in the corner of the Academy quadrangle, not far from the entrance to the Diploma Gallery. The vacant post must necessarily be filled very soon, and the name of Mr. Yeames, R.A., the Academy Librarian, has already been mentioned as that of a possible successor to Mr. Calderon.

Surveying & Sanitary SUPPLEMENT.

MAY 11TH, 1898.

THE CAMERA AS A SURVEYING INSTRUMENT.

By G. A. T. MIDDLETON.

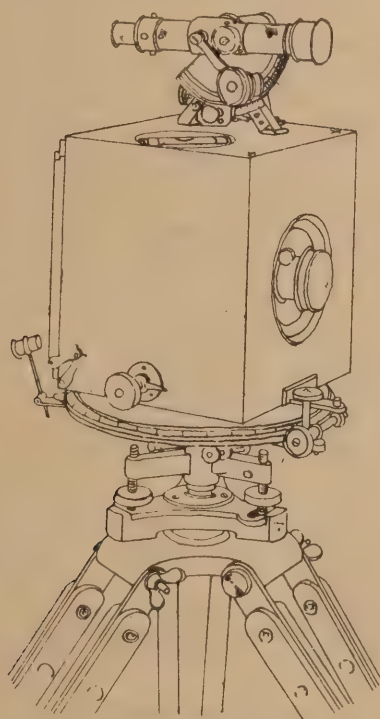
THE idea of employing photography to aid land surveying work is an old one, but while a good deal of attention has been given to it, only recently have any practical results been achieved, and it can scarcely be said that perfection has yet been reached. At something has been done, and it is well at this something should be made more widely known to surveyors. Firstly, it is necessary that the surveyor should be a good technical photographer, understanding the mysteries of plate changing,

or three prints from each, sending at least one set home at the first opportunity, so that in case of the negatives being broken or lost, the record may be still complete.

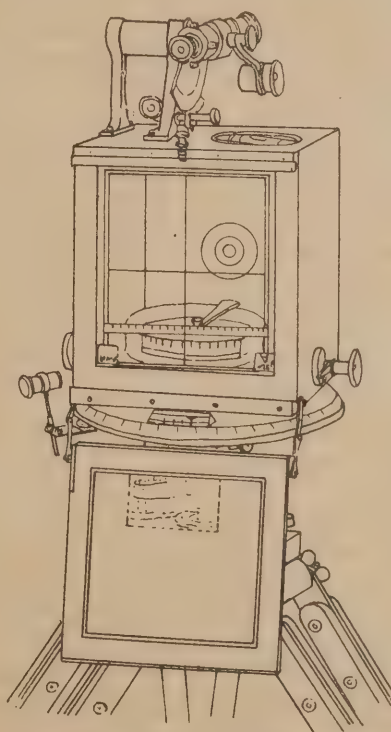
A special camera invented a few years ago by Colonel Stewart, however, did more than this. It could be erected over the theodolite stations, and was so contrived that it rotated by clockwork, and when set in motion a long negative was obtained upon a broad strip of celluloid, giving a complete panoramic view. When printed, the strip would form a complete circle on its ends being connected, and it could then be used for map-making with considerable precision, similar films being taken at each theodolite station; though, of course, there would be slight errors owing to the film rollers varying in diameter as they un-

parts of the world it is much less noticeable than it would be in England, and could be put right by local intensification or reduction of the negative after development.

Quite recently an instrument called the Photo-Theodolite has been introduced, which in appearance is like a square box camera, resting on the horizontal limb of a Theodolite, and carrying the vertical limb. The compass is within the camera box, and cross hairs are stretched across a frame, which also supports celluloid graduated arcs with angular readings on them, varying accordingly to the lens used. When the dry plate is in position and the slide open, the carrier, together with its cross hairs and graduated arcs, is racked against the plate. The direction in which the camera points is determined by the Theodolite telescope, and



SIDE VIEW OF PHOTO-THEODOLITE.



BACK VIEW OF PHOTO-THEODOLITE.

posure, development and printing, so as to produce a clear sharp negative and an equally sharp print. Further than this, he must purchase the necessary expensive apparatus, and he must be engaged upon work which it would be a waste of time to do if he did not intend to spend a great deal of money in delineating. For ordinary plan surveying he must depend upon his usual instruments, but it is often useful to be able to take home a record of the topography of the country surveyed, that those who are not themselves technically capable of reading a map may understand the country through which a proposed railway or canal is to be constructed, and this in great detail.

Of course, any ordinary camera can be employed, and a series of negatives taken, ordered to numbers in an index, the only special precaution required being to develop the negatives at the surveying camp as soon as possible after being taken, and to make two

rolled and rolled up. If, however, the measurements be made from the negative, the results have been tested and found to be absolutely accurate, lifting the camera from the position of a toy to that of an almost perfect surveying instrument.

On such surveys as that of the North-West boundary of India, this instrument is of great value; but it has the disadvantage that, the speed of rotation once selected, it would make a complete revolution at the same speed, so that in many situations a piece of open, well lit country, say, to the south, might give an over-exposed portion of film, while a ravine or deep valley in the north would be just as greatly under-exposed.

This, however, can be compensated by taking two negatives, at different speeds of rotation (giving different exposures), to meet the two extremes; and in the clear atmosphere of many

on exposure the representation of the hair on the plate is exactly that of the hair on the telescope when level. The instrument is used over Theodolite stations, and Theodolite readings are taken in the usual way, the negatives being taken along lines which are thus recorded. It is usually the practice, when using such an instrument, to take two negatives of each view, giving them different exposures to provide against error.

It is somewhat of a disadvantage that the compass should be so awkwardly placed within the camera for general Theodolite use, particularly as all its parts have to be painted black, and it must also be awkward at times, especially when traversing, to have only one vernier on the horizontal limb. These are only minor objections, and both the instruments which we have mentioned are serious attempts to add the camera to the surveyor's equipment.

Power from Compressed Air.

SOME GENERAL MISCONCEPTIONS.

COMPRESSED AIR has been abused in its use most shamefully, and until recently none of its friends have been able to be seen or heard, so intensely has the interest of the world been centred upon the marvellous results of the investigation into electrical phenomena. The mysterious has such a fascination for the ordinary mind, and the meteoric developments of electrical science have come so thick and fast, and in so many fields of usefulness, that the average individual could be stampeded into the electrical camp by a mere mention of the name of this most elusive fluid. Now there has come a breathing spell, and the advocates of compressed air are calling attention to the fact that compressed air, properly generated and applied, owns a place in the economics of the day, and this they propose to maintain. Compressed air has been generally understood to be

A MOST EXPENSIVE FORM OF POWER,

and has been given sufferance only because of its utility, since for underground work it really has no rival at any price. Because the laws of compression and expansion of permanent gases belong to the realm of higher mathematics, few understood what they were dealing with, and many of these, unable to overcome the freezing of their motors, did as the public generally did—namely, used the air at practically full stroke, and threw away all the intrinsic energy of the air which we can develop by expansion. Theoretically they thus threw away two-thirds of their power, and practically about three-fourths. Ordinary direct-acting pumps and rock drills do not have an efficiency of even twenty-five per cent. No small wonder, then, that the wood piles have dwindled rapidly away and small power results have been produced. Everything was sacrificed to utility (says Mr. Edward A. Rix, in *Cassier's Magazine* for May), and compressed air did not take its proper rank until engineers began to realize that it must be

USED EXPANSIVELY.

To use air in an ordinary direct-acting pump is equivalent to throttling a head of water to one-fourth of its spouting velocity to accommodate the speed of a wrongly-gearred water-wheel. I fancy that most of the trouble on the whole subject has arisen from a misconception of what compressed air is in a power sense. Many believe that the power of the engine which compresses the air has been stored in the air compressed, and the more steam they give the engine and the harder it worries and flurries, the more work the air should finally yield up. They do not understand that a pound of compressed air at the same temperature contains the same intrinsic energy, no matter what the pressure is, and this is originally contained in the atmosphere before it is compressed at all. This being the case, no matter what power was expended to compress 1lb. of air to, say 90lb. gauge pressure, it will have at the same temperature but one intrinsic potential stored within it. Temperature is the head—if I may use a term applied to water—from it comes the power.

THE total length of the new Victoria Bridge across the River Ayr, is 220ft., the width between parapets being 40ft. The bridge is formed of three spans, the piers and the abutments being bedded in the solid rock. The cost of the bridge, with its approaches and the other work done by the town at this place, will amount to about £8000. Mr. William Clarke, builder, Ayr, is the contractor for the whole contract, his sub-contractors being Messrs. Alexander Findlay and Co., Motherwell, for the steel and iron work, and Messrs. Walker and Son, Ayr Chemical Works, for the bitumen and tar macadam work. The burgh engineer, Mr. John Eaglesham, C.E., prepared the plans, and Mr. W. Murray has acted as clerk of the works.

HEATING AND VENTILATING HOUSES.

THE subject of heating and ventilating houses is dealt with in an interesting article in the *British Medical Journal*: "The habits of different nations," it says, "in the matter of warming of their houses would afford a curious subject of investigation for some sociologist of leisure. Civilised people who inhabit countries which have a really cold winter—the Canadians, for example—arrange to warm their houses throughout by hot air or hot water, and keep rooms and staircases and corridors more or less at an even temperature, which can be regulated to within a few degrees, whatever the cold outside. In many countries with a hot summer—in Italy, for instance—

THE MEANS OF WARMING ROOMS

in cold weather are very inadequate, almost non-existent, and the inhabitants and their travelling guests shiver round a brazier, or boldly sit out the cold wrapped up in their warmest garments, which seem designed rather for use indoors than out. The Russian builds himself a flat brick stove in the middle of his room, and most of his time indoors he spends on the top of it. In Great Britain we have no system in particular, but after the manner of the noble savage when wild in woods he ran, we build a great fire round which we sit roasting our shins while the back freezes. The despairing suggestion is now made that we should keep 'the air inside the house nearly the same as the air outside, and dress accordingly.' If this means that we should take pains to keep our rooms well ventilated and free from what Dr. Ransome has picturesquely called

'AIR SEWAGE,'

no better advice could be given. But to attain this end there is no need to let the temperature of the house sink to the level of the exterior, nor, indeed, to do away with the open fireplace, the 'sea-coal fire' which Lord Byron loved, 'when not too dear.' The mischief of the fireless room, and of the stove-heated room, is that when the external air is very cold there is a natural tendency to close all doors and windows, so that the rooms become both stuffy and hot. The salvation of British rooms is the open fireplace. It is a very ineffectual warmer of the room, and, as usually constructed, does little or nothing to warm the air. When burning brightly it acts as a powerful extractor of air. As we do not, as a rule, provide inlets for the air at suitable places, it is drawn from doors and windows and floors, for bricks are pervious, whence draughts and cold feet. This is very stupid, for it is easy to get an open grate which will admit into the room a sufficient quantity of warmed air. Such grates are to be seen in many hospitals; why they have not yet found their way into most houses is a mystery which architects and builders may be asked to explain."

AN exhibition of plumbers' work, the result of a prize competition organised by the Council for Manchester and District of the National Registration of Plumbers, has been held in one of the rooms of the City Art Gallery. At the opening, Mr. J. W. Hurst, secretary, explained that the Council regretted that they had been able to offer only £75 in prizes, but it was believed that the quality of the work had not suffered on that account, and as a matter of fact there had been 241 entries in seven classes. The exhibition preceded the handing over the prize work to the Technical Instruction Committee, as a nucleus for a permanent sanitary museum. It was pointed out that the objects of the registration movement "are to secure a more scientific training for plumbers, and the enforcement of disciplinary powers, with a view to the protection of the public against the dangers arising from inferior workmanship." The specimens shown in the exhibition afford proof of the advance recently made in this department of sanitary provision.

Surveying and Sanitary Notes.

A DISTRESSING account is published of the insanitary condition of Perth, Western Australia. The town has a population of about 50,000, and not even the most elementary system of drainage. An Englishman, who went there in February last, recently wrote, saying:—"All the dirty water and refuse is run by each house into a hole in the sand, then rain comes and a hot sun, and then typhoid and diphtheria."

THERE is a difficulty at Derby about sewers. An action has been brought against the Town Council with respect to the disposal of the sewage of the town, and the matter was to have been submitted to the decision of the Derbyshire County Court Judge on May 5th. An arrangement has, however, been made, so that the threatened action is, at any rate, to stand over for the present. This will give the Council further time in which to complete a main drainage scheme.

It looks as if the bacteriological treatment of sewage is likely to prove a great success, and to solve one of the most difficult problems with which modern communities have to deal. The experiment tried by the Leeds Corporation with two tanks under Mr. Dibdin's supervision has proved satisfactory, and the Committee have now decided to construct four new tanks. That the purification by the bacteriological process is effective is shown by the fact that for four months three small carp have lived in the purified effluent with health and comfort. Meanwhile, Manchester is deciding to lay down bacteria beds.

AN important arbitration case has been decided by Sir Benjamin Baker, appointed by the High Court of Justice, and sitting at the Westminster Palace Hotel. It arose out of a claim by the Manchester City Council for £12,000 damages against Messrs. Perkins, Graham, and Co., contractors, for certain sewers in Deansgate, Manchester. On behalf of the Corporation it was stated that the work was so badly and imperfectly done that they had to practically reconstruct the whole of the sewers. On behalf of the contractors the scamping was acknowledged, but it was laid to the door of the working bricklayers, who were charged with cheating contractors and Corporation alike. Mr. Perkins and his agent, Mr. Tomlinson, had occasionally inspected the work, and all had appeared to them to be right. When the defects were discovered the contractors offered to make good the deficiency, and to hand over the sewers finished properly in accordance with the contract terms. This the Corporation refused to allow them to do. They were willing to pay what was fair, and they had deposited £1900 in court.

SIR BENJAMIN BAKER, the arbitrator found that the defendant company committed breaches of the contract set out in the statement of claim, and that such breaches consisted in part in the fraudulent substitution by workmen employed by the defendant company of works not in accordance with the terms of the said contract for the works which the defendant company were bound to execute, and which the said workmen were employed to execute. "It was the duty of the defendant company and the defendant James Perkins to have prevented the said fraud, and to have discovered and remedied the improper substitution of works, and that by the negligence of the defendant James Perkins, or those for whom he and the defendant company were responsible, the defendant failed to prevent or discover the same," but his failure to do this was due to negligence, and that owing to such negligence the defendant "was not aware of the said fraudulent acts, and that he was not party or privy to any fraud in the matter and that neither he nor any other director or agent of the company having any duty on

authority to make any representations to the plaintiffs on the subject made any fraudulent representations." In respect of the contract in the statement of claim, the Arbitrator finds that the plaintiffs were entitled to retain the sum of £464 16s. 2d., and to receive out of the sum of £1900 paid into court by the defendants, and to receive from the defendant company a further sum of £1849. In respect of contract No. 11 in the counter-claim the plaintiffs were entitled to retain the sum of £350 in satisfaction of the breaches of that contract. The Arbitrator further finds that the defendants Godfrey Heathcote and Richard Jessop Dearden are liable upon their bond as sureties for the defendant company to pay to the plaintiffs a sum or sums not exceeding £1000 in discharge or part discharge of such part or any of the said sum of £1849 as the defendant company shall fail to pay in pursuance of the award and judgment entered thereon. Accordingly he directs that the sum of £1900 paid into court in the action, and any interest that may have accrued hereon, be paid to the plaintiffs, and that judgment be entered for the plaintiffs against the defendant company for £1849, and against the defendants Godfrey Heathcote and Richard Jessop Dearden jointly and severally for £1000, but the judgment be not enforced against the last-named defendants except for such part of the sum of £1849 as the defendant company shall have failed to pay. He orders that each of the parties shall bear his and their own costs of the action and counter-claim and all proceedings thereon, including the trial, and that the costs of the award, which are fixed at £296 15s. 6d., shall be paid, as to one moiety to the plaintiffs, and as to the other moiety by the defendant company. In conclusion the Arbitrator declares that, save as aforesaid, no party to the action or counter-claim is entitled to any relief against the others or other in respect of the matters referred to him.

In the Chancery Division of the High Court of Justice, judgment has been delivered in the case of Fielden v. The Mayor and Corporation of Morley, by Mr. Justice Byrne. His Lordship held the plaintiff sued the Corporation, claiming an injunction to restrain them from constructing a certain catchwater, or in any way causing or allowing water to collect and flow on to the plaintiff's land, and also to restrain the defendants from trespassing on any part of the plaintiff's land. The plaintiff so nominally asked for damages, but only by way of raising the question of his right. It had been argued that the Corporation were not entitled to make a certain weir, or bye-wash, because by so doing they had failed to make the catchwater for conveying the water from

the estate watertight. The real question was whether the defendants were entitled to construct this bye-wash. He did not think it offended against the provisions of the Act that the catchwater had to be made watertight, and he had a strong body of evidence to show that the bye-wash was properly constructed, and in the proper place. He therefore came to the conclusion that the bye-wash was a proper work, and did not infringe upon the provision that the catchwater was to be constructed and maintained watertight. Assuming the injury to have been caused by the leaking, overflow, or failure of the works, the statute provided for the remedy under Section 140 of the Railway Clauses Act, 1845, which pointed out the method of determining the amount and of enforcing payment. As to the blocking-up of the catchwater by stones and sand, it was only done for a temporary purpose, and as to the technical trespass committed in this regard, his Lordship said that no injury had been done to make it actionable. The plaintiff's action, therefore, failed, and judgment would be for the defendants, with costs as between solicitor and client.

THE Birmingham Public Works Committee report that plans have been submitted for the laying out of the estates lying between Balsall Heath Road and Edgbaston Road, and it is found that the sewers in the district are too shallow to effectually drain the area. It is also found that, owing to the development of property in this part of Balsall Heath, the sewers which were constructed by the late Local Board are already overcharged, and that the sewers in Court Road and Clevedon Road are in an unsatisfactory condition. Under these circumstances, it has been necessary to devise a scheme of main drainage for the low-lying portion of Balsall Heath, between Balsall Heath Road and Edgbaston Road. The city surveyor has prepared a scheme by means of which the whole of this area can be effectually and satisfactorily drained, utilising the sewer in Alexandra Road, which is of adequate dimensions for the purpose. The new sewer will be an oval brick one, 3ft. 4in. by 2ft. 6in. as far as the junction of Cannon Hill Road and Edwardes Street, and from that point to its termination in Edgbaston Road a 2ft. 3in. stoneware pipe, the estimated cost amounting to £5500, presuming that the ground is of fair average quality.

SHOULD everything go well, the reconstruction of Jamaica Bridge, Glasgow, will be completed early next year. The first two arches have been built with Cornwall granite, and so will the seventh, while the other four will be chiefly constructed with Fife and Aberdeen blocks. There have been 54 cylinders sunk, most of them to a depth of

75ft., although others as deep as 106ft., the latter being the greatest depth. A capital bed of freestone rock was got. It was found that an air pressure of about 45lb. was required at a depth of 106ft., and this was too much for the men to work at. The engineers and all concerned were satisfied that having secured a splendid hard and pure gravel bed at a depth of 75ft. this was quite sufficient, and work could be fairly comfortably conducted with something like 34lb. of air pressure. Upon what has become known in the works as the test cylinder, one of those reaching a depth of 75ft., there was placed 1100 tons of rails, and in the course of three months the yield was only one-eighth of an inch. It was the intention originally to replace the balustrade of the old bridge in its simple dressed condition; but the Corporation seem to have acted judiciously in ordering that every block of granite be polished. Messrs. Morrison and Mason are the contractors.

MR. HERBERT VIVIAN, in his recent book on "Servia," states that the sanitary service is very well organised. There are medical officers for departments and districts, and they have power to impose the minutest sanitary regulations, and even to prescribe the food of the people, which they do not hesitate to do whenever occasion requires.

In the Queen's Bench Division recently the case of the Cuckfield Rural District Council v. Goring was heard. It was an appeal by the defendant from the decision of the County Court Judge of Sussex sitting at Worthing. The action was brought under section 25 (2) of the Local Government Act, 1894, which provides that "where a highway repairable *ratione tenuræ* appears on the report of a competent surveyor not to be in proper repair, and the person liable to repair the same fails, when requested so to do by the district council, to place it in proper repair, the district council may place the highway in proper repair, and recover from the person liable to repair the highway the necessary expenses of so doing," to recover the cost of repairs executed by the plaintiff council to two foot bridges, which it was alleged the defendant was liable to repair *ratione tenuræ*, as owner of two farms. The County Court Judge held that a liability to repair the foot bridges attached to the farms in question, and he further held that under section 25 (2) of the Local Government Act, 1894, proceedings might be taken against the owner of lands to which such an obligation attached, and he gave judgment for the plaintiffs. The defendant appealed. The appeal was allowed.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF TENDER.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
14	Sherburn-in-Elmet—Additions, &c., to One Cottage ...	Governors ...	Wm. Bakewell, Architect, 38, Park-square, Leeds.
14	Downpatrick—Alterations and Additions to Infirmary ...	School Board ...	County Surveyor, Downpatrick.
14	Paisley—Public School ...	Leeds Co-operative Society ...	John Hutchison, 112, Hope-street, Glasgow.
14	Pudsey, Yorks.—Twelve Terrace Houses ...	School Board ...	Herbert Hodgson, Architect, Old Bank-chambers, Bradford.
14	Athlone—Schools and House ...	... ..	P. J. Prendergast, Northgate-street, Athlone.
14	Willenhall, Staffs.—Infant School and Alterations ...	... ..	J. P. Baker, Architect, 33, Market-place, Willenhall.
15	Tullamore, King's County—Church ...	... ..	W. Hague, Architect, 50, Dawson-street, Dublin.
16	Accrington—Infant School ...	... ..	Henry Ross, 15, Carron-street, Accrington.
16	Fowery, Cornwall—Erection of Buildings ...	Fowery Wine Company ...	Sampson Hill, Architect, Redruth.
16	Garlands, near Carlisle—House for Patients ...	Lunacy Committee ...	G. D. Oliver, Architect, 5, Lowther-street, Carlisle.
16	Garlands, nr. Carlisle—Additional w.c. Accommodation ...	Lunacy Committee ...	G. D. Oliver, Architect, 5, Lowther-street, Carlisle.
16	London, E.C.—Foundations ...	Commissioners of H.M. Works ...	H. Turner, 15, Whitehall-place, S.W.
16	Western Point, near Runcorn—Reconstruction of Church Spire ...	Weaver Navigation Trustees ...	J. A. Saner, Engineer, Norwich.
16	Aintree, near Liverpool—Erection of Shops ...	... ..	W. P. Hartley, Aintree, Liverpool.
16	Mount Pleasant, E.C.—Foundations at Parcel Depot ...	H.M. Office of Works ...	H. Turner, 15, Whitehall-place, S.W.
16	Southampton—Erection of Lodging-house ...	Corporation ...	Borough Engineer, Municipal Offices, Southampton.
16	Wednesbury—Erection of Fire Station, &c. ...	Corporation ...	E. Martin Scott, Borough Surveyor, Town Hall, Wednesbury.
17	Ipswich—Erection of Classroom ...	School Board ...	T. W. Cotman, Architect, Northgate-street, Ipswich.
17	Croydon—Store and Workshop ...	Corporation ...	A. Broad, Architect, 22, George-street, Croydon.
17	London, E.C.—Underground Conveniences ...	Corporation ...	Corporation Engineer, Guildhall.
18	Patricroft, Larcs.—Erection of Infirmary ...	Guardians ...	Hurrell and Taylor, 25, Brazennose-street, Manchester.
18	Burslem, Staffs.—Erection of Facing, &c. ...	Agricultural Society ...	Secretary, Newcastle, Staffordshire.
19	Lancaster—Wing for Royal Albert Asylum ...	... ..	Austin and Paley, Architects, Castle Hill, Lancaster.
19	Marsden, near Huddersfield—Five Shops and Houses ...	... ..	J. Kirk and Sons, Architects, Huddersfield.
20	Banstead—Drill Hall and Gymnasium ...	Kensington and Chelsea School District ...	C. Sharp, 59, Finchchurch-street, E.C.
21	Annan, Scotland—Erection of Slaughter House ...	Burgh Commission ...	A. Tweedie, Surveyor, Lady-street, Annan.
21	Draperstown, Londonderry—Erection of Church ...	Rev. P. Grant ...	E. J. Toye, Architect, Strand, Derry.
23	Leeds—Erection of Warehouse ...	Bainbridge and Co. ...	T. Winn, Architect, 92, Albion-street, Leeds.
24	Ilford, Essex—Cemetery Works ...	London Burial Board ...	Corporation Engineer, Guildhall.
24	Leicester—Superstructure of Asylum Buildings ...	Corporation ...	G. T. Hine, 35, Parliament-street, W.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
May 25	Farnham—Erection of Infirmary	Guardians	Friend and Lloyd, Grosvenor-road, Aldershot.
" 25	St. Helens, Lancs.—Erection of Destructor Shed	Health Committee	Geo. J. C. Broom, Borough Engineer, St. Helens.
" 25	Ugborough, Devon—Enlargement of School	School Board	Mr. Phillips, The Schools, Ugborough.
" 25	Newport, Mon.—Additions and Alterations to Workhouse	Guardians	B. Lawrence and Son, Dock Street, Newport.
" 27	Hawes, Yorks.—Erection of Residence	Corporation's Gas Commissioners	T. T. Ireson, Eastburn, Hawes.
" 31	Edinburgh—Pulling Down Chimney	Ecuadorian Government	W. R. Herring, Gasworks, New Street, Edinburgh.
Aug. 31	Guyaquil—Construction of Custom House		Commercial Department, Foreign Office, S.W.
Oct. 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.		Brazilian Legation, London.
No date.	Halifax—Eight Shops, &c.		W. C. Williams, Architect, 29, Southgate, Halifax.
"	Watton, Norfolk—Cottage Hospital		H. J. Green, Architect, 31, Castle Meadows, Norwich.
"	Amble—Medd Memorial Schools	Mr. E. Bernard Rees	J. Wrighton and Douglas, The Willows, Alnwick.
"	Cardiff—Recruiting House	Co-operative Society	S. Rooney, Quay-street, Cardiff.
"	Crawcrook, Durham—Fifteen Houses	Chesthill Estate	Wm. Dixon, Architect, St. John-street, Newcastle.
"	Glenlyon, Perthshire—Alterations to Farmhouse	School Board	Mackenzie, Innes, & Logan, W.S., 23, Queen-st. Edinburgh.
"	Haworth, Yorks.—Erection of School		Peterson and Lawson, Architects, 1, Bank-street, Bradford.
"	Heyrod, near Stalybridge—Conservative Club		Geo. Rowbottom, Architect, Dean-street, Stalybridge.
"	Kirkstall, Leeds—Erection of Mill Chimney	Misses Gale	J. Graham, Architect, Bank-chambers, Bank-st., Carlisle.
"	Leeds—Laundry Buildings		C. E. Arundel, Kirkstall Estate Office, 21, Albion-st., Leeds.
"	London, W.—Block of Flats	Co-operative Society	Johnstone, Bros., Architects, 39, Lowther-st., Carlisle.
"	Newhey, Rochdale—Erection of Store	Dr. Cullivan	Metcalfe & Greig, Architects, 11, Serjeant's Inn Temple, E.C.
"	Pontyminster, Mon.—Erection of House	Rochester, Chatham & Dist. Laundry Co.	S. Butterworth and Duncan, 4, South-parade, Rochdale.
"	Rochester—Laundry Buildings		C. Telford Evans, 3, Queen-street, Cardiff.
"	Salford—Plastering Twelve Cottages	Amicable Industrial Society	The Offices, 156, Eastgate, Rochester.
"	Skinningrove, Yorks.—Erection of Stores	Warwick's Revolving Tower	A. Richardson, Bedford-street, Greengate, Salford.
"	Southend—Erection of Buildings		A. F. Newsome, Middlesbrough.
"	Wigan—Shops and Houses	Y.M.C.A.	W. J. Wood, Architect, 26, Alexandra-street, Southen l.
"	Cardiff—Y.M.C.A. Building	Dobbin and Co.	Heaton, Ralph, and Heaton, Architects, King-st., Wigan.
"	Cork—Shops and Residences	G. A. Fitch	Jones and Co., Architects, 18, St. Mary-street, Cardiff.
"	Hadleigh, Essex—Houses and Shops	Ecclehill School Board	A. Hill, Architect, 22, George's-street, Cork.
"	Greengates—Extension of Schools	J. C. Eddersham	E. Wright, Architect, Southend-on-Sea.
"	Swansea—Business Premises		Kendall and Baker, Architect, Victoria-square, Leeds.
"	Hovenden, Yorks—Two Houses		Jones and Rowlands, Architect, 58, Wind-street, Swansea.
"	Halifax—Concert Hall		M. Hall, Architect, 29, Northgate, Halifax.
"			W. C. Williams, Architect, 29, Southgate, Halifax.
ENGINEERING—			
May 14	Downpatrick—Sinking Well and Erection of Fountains	Guardians	J. W. Montgomery, Clerk, Poor Law Office, Downpatrick.
" 14	Bollington, Cheshire—Reservoir, &c.	Urban District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
" 16	Birmingham—Construction of Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 16	Hunstanton—Gasholder Tank	Urban District Council	Stevenson & Burstal, 38, Parliament-st., Westminster, S.W.
" 17	Bethnal Green—Supply of Plant and Electric Light	Guardians	Giles, Gough, and Trollope, 28, Craven street, Strand, W.C.
" 17	London, E.C.—Engines and Tenders	Nizam's State Railways Company	Acting Secretary, Room 268, 50, Old Broad-street, E.C.
" 18	Melling—Waterworks	West Lancs. Rural District Council	J. J. Lackland, Town Hall, St. Helens.
" 21	Manchester—Erection of Hydraulic Pump	Waterworks Company	Secretary, Waterworks Office, Town Hall, Manchester.
" 23	Paisley—Construction of Railway	Paisley & Barrhead District Railway Co.	Formans and McCall, 160, Hope-street, Glasgow.
" 27	Sophia, Bulgaria—Construction of Port	Rural District Council	Ministry of Public Works at Sophia.
" 28	Cirencester—Well Sinking, &c.	River Wear Commissioners	F. Redman, Newport-street, Swindon.
" 28	Sunderland—Erection of Lattice Girders, &c.	Hygienic Commission	H. H. Wake, Office, Commissioners' Quay, Sunderland.
" 31	Tangiers—Water Supply	Ministry of Public Works	Commercial Department, Foreign Office, Loudon, S.W.
July 4	Radomir, Bulgaria—Construction of Railway	Gas and Electric Lighting Committee	Commercial Department, Foreign Office.
No date.	Leicester—Supply and Fixing of Grids	Rural District Council	A. Colson, Engineer, Millstone-lane, Leicester.
"	Briercliffe, Burnley—Steel Girder Bridge, &c.	Gas Committee	S. Edmondson, Surveyor, 18, Nicholas-street, Burnley.
"	Littleborough, Lancs.—Driving a Tunnel	Rural District Council	Samuel Stott, Middlewood Colliery, Littleborough.
"	Padiham, Lancs.—Supply of Scrubber, Washer, &c.	County Asylum	J. E. Smith, Manager, Gasworks, Padiham.
"	Belper—Laying Cast-iron Mains		J. B. Mason, Engineer, Duffield, near Derby.
"	London—Baking Ovens		Resident Engineer, Asylum, Hanwell, W.
IRON AND STEEL—			
May 14	Bollington, Cheshire—Supply of Cast-iron Pipes	Urban District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
" 14	Durban, Natal—Supply of Pipes, &c.	Corporation	W. H. Radford, Engineer, Angel-row, Nottingham.
" 16	Amsterdam—Cast-iron Water Pipes, &c.	Municipal Waterworks	Municipal Printing Office, Amsterdam.
" 16	Cairo—Angle Steel Saddle Arches	Southern Mahratta Railway Co.	Director of Police Stores, Boulak, Cairo.
" 17	London, E.C.—Wheels, Axles, and Tyres	Uganda Railway Committee	Company's Offices, 44, Finsbury-circus, E.C.
" 20	Uganda—Coal Wagons	Director of Contracts	Crown Agents for the Colonies, Downing-street, S.W.
" 26	Valetta, Malta—Cast-iron Pipes, &c.		Crown Agents for the Colonies, Downing-street, S.W.
PAINTING AND PLUMBING—			
May 14	Accrington—Cleaning and Painting Town Hall	Corporation	W. J. Newton, Borough Engineer, Town Hall, Accrington.
" 18	Hemsworth, Yorks.—Painting Outside Hospital	Brentford Guardians	H. L. Swift, Archbishop Holgate's Hospital, Hemsworth.
" 18	Isleworth—Cleaning and Painting Infirmary	School Board	W. Stephens, Clerk, Union Offices, Isleworth, W.
" 18	Swindon—Painting and Repairs at Schools	Central London Sick Asylum	J. Clark, 130, Princes-street.
" 23	London—Repairs and Painting		W. S. Cross and Kekwick, 18, Outer Temple, E.C.
" 30	Watergrove, Rochdale—Painting and Decorating Church	School Board	G. E. Cryer, Church-terrace, Wardle.
No date.	Wombwell, near Barnsley—Painting Broomhill School		J. Robinson, Clerk, Office of the Board, Wombwell.
"	Heyrod, near Stalybridge—Plumbing, &c., for Conservative Club.		G. Rowbottom, Architect, Dean-street, Stalybridge.
ROADS—			
May 14	Bathgate, Scotland—Laying Footpaths	Commissioners	W. Allan, Clerk, Bathgate.
" 14	Benfieldside—Laying Footpaths	Urban District Council	J. Dixon, Surveyor, Benfieldside.
" 14	Willenhall, Staffs.—Levelling Playgrounds	School Board	Joseph P. Baker, Architect, 33, Market-place, Willenhall.
" 16	London, W.—Supply of Wood Paving, &c.	Paddington Vestry	Surveyor's Office, Vestry Hall, Harrow-road.
" 16	Wimbledon—Making-up Roads	Urban District Council	Surveyor's Office, The Broadway, Wimbledon.
" 16	London, N.—Asphalte Paving	Islington Vestry	J. P. Barber, Vestry Hall, Upper-street, N.
" 17	Croydon—Road Repairs	Corporation	Road Surveyor's Office, Town Hall, Croydon.
" 17	Catford, S.E.—Kerbing, Channelling, &c.	Lewisham Board of Works	Surveyor's Department, Town Hall, Catford, S.E.
" 18	Plumstead—Paving and Making-up Streets	The Vestry	W. C. Gow, Surveyor to the Vestry, Plumstead.
" 20	Stokesley, Yorks.—Highway Improvements, &c.	Rural District Council	J. H. Walker, Engineer, Northalerton.
No date.	Sandal Magua, Wakefield—New Streets, &c.	Trustees of late Mr. G. H. Westerman	Fennell and Green, Surveyors, 82, Westgate, Wakefield.
SANITARY—			
May 17	Wimslow—Sewers, &c.	Urban District Council	Offices, Swan-street, Wimslow.
" 17	Congleton—Construction of Sewers, &c.	Corporation	Borough Surveyor's Office, Town Hall, Congleton.
" 20	Buiford—Removal of Refus	War Office	Asst. Adjutant-Gen. (B), Headquarters Office, Portsmouth.
" 21	Farsley, Yorks.—Sewage Works	Urban District Council	H. A. Johnson, The Exchange, Bradford.
" 21	Worth, Sussex—Laying Drains, &c.	East Essex County Council	H. Card, County Surveyor, County Hall, Lewes.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
May 18	Wrexham, Denbighshire—County Intermediate Schools	£50, £20	W. R. Evans, 56A, Hope-street, Wrexham.
June 1	Wallsend—Laying-out Park	£50, £20	Wallsend Urban District Council.
" 7	Salford—Designs for Chapels, &c., at Cemetery	£50, £20, £20	Corporation.
" 24	East Ham—Offices, Fire Station, and Public Baths	£105, £52 10s.	Urban District Council.
July 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phoebe A. Hearst Fund; represented England by the R.I.B.A.
1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.



A SHIP FRIEZE. DESIGNED BY F. HAMILTON JACKSON. MANUFACTURED BY WYLIE AND LOCHHEAD.

Two Wall-Paper Friezes.

WE illustrate on this page two wall-paper designs for friezes, by Mr. F. Hamilton Jackson and Mr. Arthur Gwatkin respectively, manufactured by Messrs. Wylie and Lochhead, 35, Maddox Street, W. The original drawing of the chrysanthemum frieze was exhibited in the architectural room of the R.A. and the Arts and Crafts in 1896. The outline only of the design is in relief, the colour decoration, entirely brush work, gradating and slightly colour relieved. While the colour is wet, the whole frieze is rubbed off, leaving the outline in places more or less free of colour. The colour scheme is executed either on the material or on the material covered with aquerred metal. The latter course gives richness, and the outline after the rubbing off appears as gold or bronze, whichever lacquer has been used. The same process is carried out with the "ship" frieze. This design looks exceedingly well in plain white; however, the lines of the drawing are sufficient with the decorativeness of the light and shade of the relieved outline. Messrs. Wylie and Lochhead have also tried bronze and copper lacquer treatment of this design without other colour, with splendid result. Wylie and Lochhead, we think, have greatly advanced their collection of designs and the method of printing, and careful consideration of colour should make their set useful and trustworthy. Besides these relief friezes, the firm has a number of designs with a printed outline, and colour decoration with brushwork. The value of the outline relief is lost, but the friezes are much less expensive, and the decorativeness of the handwork and the possibility of making a scheme for its particular site is retained.

At the Southwark Police Court James Car-chael, builder, of Wandsworth, has been summoned for beginning the foundations of a building without having given seven days' notice to the Bermondsey Vestry. The magistrate fined the defendant £5, with further penalties of 10s. a day for fifty-six days, and costs of the summons, making £33 2s. all.

R.I.B.A.

THE ANNUAL GENERAL MEETING.

THERE were not many matters of interest to be decided at the sixty-fourth annual general meeting of the Royal Institute of British Architects, held on Monday week, under the chairmanship of the vice-president, Mr. H. L. Florence. The Hon. Secretary announced the decease of the following members: Augustus Laver, Hon. Corr. Member (San Francisco), elected in 1879; and Walter Seckham Witherington, Fellow, elected in 1881. The meeting approved of a recommendation of the Council to admit the Aberdeen Society of Architects to alliance with the Institute. The report of the Council for the official year 1897-98 having been submitted and taken as read, its adoption was formally moved by the Chairman, and seconded by Mr. B. Ingelow. The Secretary then read the

REPORT OF THE AUDITORS,

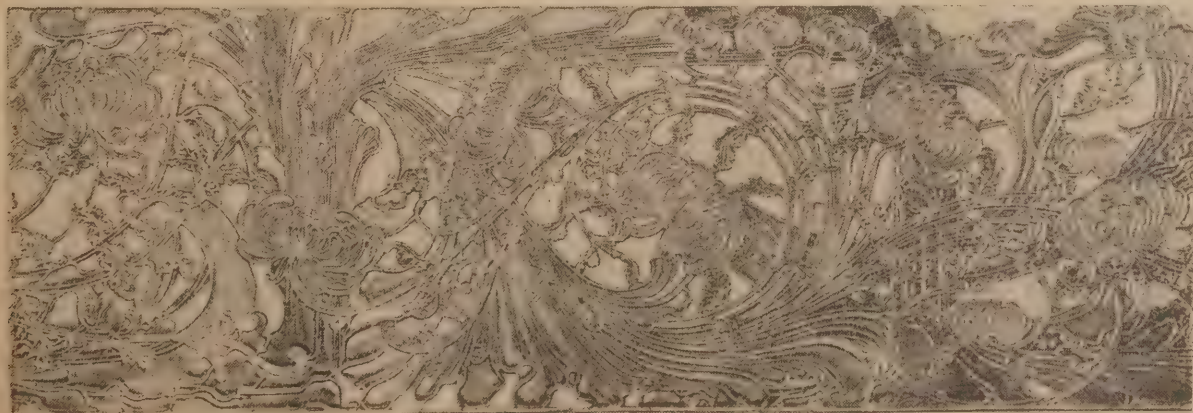
Messrs. Edmund Woodthorpe and Owen Fleming, which stated:—"We have examined the vouchers, books, and accounts generally of the Institute for the year ending December 31st, 1897, and it is with great pleasure that we are able to report our entire satisfaction. The books have been carefully and accurately kept, and an efficient control over the expenditure has been maintained. We have examined and verified the several securities, and note that the Certificate of the £40 Madras Railway 4½ per Cent. Stock, purchased on December 3rd, 1897, has not yet been delivered by the bankers. The year's working shows a net profit of £1116 1s. 11d., this being £516 1s. 11d. in excess of the estimated profit. The total cash balance of ordinary funds in the hands of the bankers on December 31st, 1897, was £1568 17s. 8d. In addition to this, the invested funds have been increased by donations and transfers from income to £4970 0s. 6d. The Institute therefore occupies a better financial position than it has done for some years past."—A general discussion on the annual report ensued, in the course of which Mr. Max Clarke, Hon. Secretary of the Science Standing Committee, asked for an explanation

of the omission from the printed report of that Committee of a clause relating to the publication in book form of the results of the

BRICKWORK TESTS,

as contained in the report originally sent in to the Council; and moved that such clause either be inserted in the printed report, or the words "Revised by the Council" be added after the heading thereof.—The Chairman having pointed out that some misapprehension existed, it was ultimately agreed that a footnote should be added to the report stating that the Council would consider the advisability of publishing the results of the brickwork experiments in the form proposed by the Committee.—The report was then approved and adopted.—The lists of attendances of members at the several meetings of the Council and Standing Committees during the official year having been submitted and taken as read, the following members were appointed scrutineers to direct the election of the Council and Standing Committees for the ensuing year of office, and report the result thereof to the business general meeting of June 6th, namely, Fellows: H. P. Burke Downing, John Hebb, F. Hooper, Delissa Joseph, Zeph. King, Hugh Stannus, and others to be appointed by the Council; Associates: W. A. Forsyth, H. Hardwicke Langston, F. W. Marks, H. A. Satchell, E. Wimperis, and H. A. Woodington.—On the motion of the Hon. Secretary, a vote of thanks was passed to Messrs. Edmund Woodthorpe and Owen Fleming for their services as auditors of the past year's accounts; and Messrs. Zeph. King and F. W. Marks were nominated auditors for the ensuing year.—The Statutory Board of Examiners were re-appointed as follows:—Messrs. Lewis Angell, Francis Chambers, Professor Banister Fletcher, Ebenezer Gregg, F. W. H. Hunt, E. B. P'Anson, Professor Kerr, J. Douglass Mathews, Lacy W. Ridge, Professor T. Roger Smith, Benj. Tabberer, and T. H. Watson.

The Baptist and Congregational Union have decided to build a new chapel at Beeston. Mr. C. Nelson Holloway, of Nottingham, has been appointed architect for the building, which is to be proceeded with at once.



THE CHRYSANTHEMUM FRIEZE. DESIGNED BY ARTHUR GWATKIN. MANUFACTURED BY WYLIE AND LOCHHEAD.

ART OF THE YEAR.

THE ROYAL ACADEMY BANQUET.

THE annual banquet of the Royal Academy took place on Saturday week, under the presidency of Sir Edward Poynter, the President. There was a distinguished company present. The Prince of Wales, in responding to the toast of his health, said in the course of his speech:—Allow me to thank you for having made reference to the Committee about to be formed to erect a suitable memorial to your illustrious predecessor, Sir John Millais. I sincerely hope that such a memorial may be in all respects as suitable as the one which was instituted for his lamented predecessor, Lord Leighton. It is not for me on this occasion to allude to the merits of that distinguished artist, Sir John Millais; but a few weeks ago, in these very halls, we had ample opportunity of seeing and admiring his works. It was marvellous that during the course of his life he was able to produce such beautiful works of Art, works which I am sure will go down to posterity. I am grateful to you, sir, for the allusion to the Paris Exhibition. I sincerely hope, as I am sure, that under the auspices of the Committee to be formed British Art may be well represented. I regret to think that there is not space for works of Art illustrative of former periods, but I am in hope that there will be a small exhibition of Old Masters, which can be shown, if those who possess them will kindly lend them, in a pavilion erected illustrative of

OLD ENGLISH ARCHITECTURE.

You alluded to matters connected with Art which have taken place during the last year. In connection with that subject I cannot help thinking that not only the artistic world but the whole nation may be congratulated on having had left to it perhaps the finest bequest ever made during the century—that of the Wallace collection at Hertford House. Every one who sees it will admit that such a collection is not only unique, but magnificent, and it was a kind thought on the part of Lady Wallace to bequeath so fine a collection to us. It has been envied by many nations. I had also the pleasure at the close of last summer to inaugurate the Tate Gallery. This was due to the munificence of Mr. Tate, who not only erected a very handsome building, but himself gave sixty pictures. In this building there are found also not only a certain overflow from the National Gallery, but also the pictures of the Chantrey Bequest, which are so much admired. As regards this Exhibition it is not for me to say anything, but, from the cursory examination I have been able to make of the galleries, I have little doubt that this Exhibition is the equal of those that have preceded it. I congratulate the artists who have pictures on the walls, and it is my fervent wish that Art may long flourish in this country, and that we may hold our own with other countries in this respect.—After the toast of "The Army and Navy" had been received, the President proposed "Her Majesty's Ministers," and, in replying, the Duke of Devonshire offered his congratulations on the success of the Exhibition, which more than sustained the standard of its predecessors. For the high standard which British Art had now reached no Government could claim any credit. But at the same time he did not think the State was open to the reproach which had sometimes been levelled against it, of utter indifference to

THE INTERESTS OF ART.

Through the Science and Art Department the State had established a School of Art and of artistic instruction, a school wide in its operation, although strictly limited in its scope and aim. The prosperous state of our finances, and the liberal spirit in which the Chancellor of the Exchequer had dealt with the question, had provided a very large sum to be applied to the completion of the necessary accommodation of the public offices and, he was happy to say, for the completion of the South Kensington Museum. The sites which were at their disposal offered great opportunities, and he was happy to be able to state

that they had been fortunate enough to secure the assistance and the advice of Professor Aitchison, President of the British Institute of Architects, and a member of the Academy, in regard to the great building scheme which was now under the consideration of the Government, and he hoped that they might succeed, as it was their intention to succeed, in erecting a series of buildings which should not be

UNWORTHY OF THE SITES

upon which they were to be erected, or of the purposes to which they were to be devoted. As to the gracious action of her Majesty the Queen herself in opening the palaces of Kensington and Kew to the public, the President of the Royal Academy was largely responsible for calling public attention to the condition of that beautiful building—the work of Sir Christopher Wren—at Kensington, known as the Banquet House. That building was lately in a deplorable condition, the result of past neglect. That neglect was now being rectified, and a really beautiful work of Art would soon be restored to the possession of the public. The same might be said of Kensington Palace, which, owing to the neglect of past generations, was falling into a state of decay. Fortunately, it was not too late to remedy that neglect, and in a very short time he trusted that London, and especially Kensington, would benefit by the placing at the public disposal of a most interesting historical relic, and also, possibly, a still more interesting historical museum, if the intentions of Her Majesty's Government were fully carried out, and certain works of Art, illustrative of the reigns of the sovereigns who occupied the Palace, were placed there as soon as it should be in a condition to receive them. While the Government believed that British artists neither required nor desired State inspiration, State guidance, or State regulation, they felt at the same time that it was the duty of the Government to do everything within their proper sphere to promote the interests of Art, and to make it possible that our people should be known throughout the world, not only as a practical, but a cultivated people.

The foundation-stone has been laid of St. Aidan's Church at Bradford, Manchester.

The prize drawings of the Royal Institute of British Architects were last week on exhibition at Liverpool.

MR. FRANK WALTON, R.I., has been elected president, and Mr. S. Melton Fisher vice-president, of the Institute of Painters in Oil Colours.

A new school building has been erected at Sellack, Ross. The building is built in red bricks, covered with Broseley tiles, and is 40ft. long by 18ft. wide.

JAMES CUTHBERTSON, jun., carting contractor, Raise Street, Saltcoats (Scotland), has been fined £2 for deviating from plans passed by the Commissioners, by constructing the inside partition walls of lath and plaster instead of brick in two dwelling houses.

The London County Council has agreed to a recommendation of the Building Act Committee to the erection of the Sir John Cass Technical Institute on the east side of Jewry Street, to abut also upon George Street and Little George Street. The plans are by Mr. H. W. Cooksey.

Church extensions and improvements are engaging attention at Devonport. At St. Stephen's a new aisle has been built. St. Aubyn Church is undergoing interior restoration. The prospective undertakings are the erection of a new parish church, and the provision of church accommodation in the neighbourhood of the Royal Naval Barracks.

The Birmingham Museum and School of Art Committee, in their annual report, recommend that they be authorised to purchase 1780 square yards of freehold land, at the corner of Moseley Road and Lime Grove, with the three dwelling-houses thereon, at a cost of £2250, and to erect thereon a branch School of Art, at a further cost not exceeding £7750, inclusive of buildings, fittings, examples, architect's commission, and any other charges.

KEYSTONES.

A new Conservative club has been opened at Plasmarl, Swansea.

A new chapel has been built at Senghenydd. The architect was Mr. Bruton, Caerphilly, and the builder Mr. Joseph Howells, Caerphilly.

The north aisle has been added to St. Alban's Church, Sneinton, in accordance with the designs of the complete scheme.

The Croydon County Council has resolved to erect new fire brigade stations at Croydon, Thornton Heath, and South Norwood, at a cost of nearly £5000.

The Strand Board of Works has decided to ask the London County Council to include in their next General Powers Bill a clause prohibiting advertising by means of "search" or "flash" lights thrown upon the public highways.

There has been placed in St. Magnus Cathedral, Kirkwall, a memorial stained-glass window. The subject depicted is Christ's story of the good Samaritan. The work was executed by Messrs. Ballantyne and Gardner, Edinburgh.

A scheme is on foot for the construction of a road tramway from London to Oxford. The service will, of course, be completed sectionally, but when the scheme is fully worked out it will be possible to travel from tram to tram between the Metropolis and the University.

A SYNAGOGUE is about to be erected in Fieldgate Street, Whitechapel, near the Great Eastern Railway Company's dwellings. The contracts have been signed, and the work is to proceed at once. The architect for the building is Mr. Wm. Whiddington, of 71, Queen Street.

The well-known timber merchants of the North, "Bennetts Limited," have purchased a large site in Trafford Park, Manchester, near the Ship Canal. The contract for their new offices on this site has been given to Messrs. Wilson and Toft, builders. Mr. Charles Heathcote, Manchester, is the architect.

The Chapter has met to consider the alterations and extensions in connection with St. Ninian's Cathedral, Perth. Various plans were examined, and, as a result of the deliberations, it was determined to go on with the larger scheme. This scheme involves the renovation of the choir, and making side aisles, and also the shifting of the present screen.

The interesting old tower of St. Caltwg and Illtyd Church, Neath Valley, Glamorgan, is about to be restored under the supervision of Mr. C. B. Fowler, of Cardiff. The fabric windows and roof, etc., are in a very dilapidated condition. The old battlements were bodily taken down some thirty years ago, and an unsightly erection built up above corbel table. It is intended to remove this and rebuild the upper portion on the old lines of the towers of the district, it is also contemplated to add three new bells to the existing three making a peal of six. Mr. W. A. James, of Cowbridge, is the contractor who has been entrusted with the work.

ANOTHER well-known British artist, Mr. Philip Hermogenes Calderon, has passed away. Since 1887 he was keeper of the Royal Academy, succeeding in that position Mr. Pickersgill, and resided in Burlington House where his death occurred after a long and painful illness. Mr. Calderon was born in France, at Poitiers, of Spanish parentage, his father being a clergyman. He commenced his studies at Mr. Leigh's School of Art, in London, and continued them in Paris. Had he lived a few days longer he would have celebrated his 65th birthday. His life was busy one, and the list of paintings, chiefly historical and imaginative, which he exhibited at the Royal Academy since 1853, extensive. Many of them have found place in leading Art galleries. Among his works are the "Burial of Hampden," "The Orphans," "Joan of Arc," "Ruth and Naomi," "Demande en Mariage," "Les Coquettes," "The Waters of Babylon," also many portraits and water-colours. From the Paris International Exhibition in 1867 he received the medal awarded to English Art, and was a Knight of the Legion of Honour.

HOLYWELL.—The new Intermediate School at Holywell, Flintshire, is built in the domestic Tudor style, of red Ruabon brick and terracotta dressings, and is roofed with Nantile

green slates. It stands on an eminence overlooking the estuary of the Dee. The building is in two sections, being divided by a large assembly hall. The contract was let for £2500 to Mr. Matthew S. Rogers, builder, Flint, who has worked from the designs of Messrs. Grierson and Bellis, architects, Bangor.

HUDDERSFIELD.—A Liberal Club has been opened here. The principal entrance is in Westgate. On the ground floor are a porter's room, a telephone room, cloak room, and lavatories. The walls of the entrance hall have been painted in a warm brown red, and stencilled so as to give a rich appearance. The principal staircase leads to the first floor, on which are most of the chief rooms. There is a large smoke-room. Adjoining it is a writing and reading room; and beyond that a "still" room, the office, small dining room, a larger dining room, and a hot-plate room. On the floor above there are two billiard rooms, a card room, rooms for the committee and for the secretary. There are on the upper floors the kitchens and servants' rooms. The furnishing of the rooms has been carried out from designs supplied by Mr. G. Faulkner Armitage, of Altrincham, near Manchester, and Mr. F. Armitage has superintended the work of furnishing. The contracts have been carried out by the following firms:—Painting and decorating, Messrs. W. and P. Holroyd; tables and chairs for the dining, smoke, card, and reading and writing rooms, sideboard for the dining room, and bookcase for the reading room, Messrs. Hobson and Son, Limited; ironmongery, &c., Messrs. T. A. Heaps and Co.; plumbing, sanitary appliances, Mr. Thos. Armitage; blinds, Mr. Joe Heywood; structural alterations, Mr. F. Calvert, Moldgreen; and electric lighting, Messrs. T. W. Broadbent and Co.

LEWISHAM, S.E.—A new priests' vestry is to be added to the Church of St. Stephen, Lewisham, one of the late Sir G. G. Scott's erections, at a cost of about £160. The architect for the alterations and additions is Mr. Philip A. Robson, 9, Bridge Street, S.W.

LINCOLN.—A new mission hall for the parish of Monks' Liberty, Lincoln, has just been opened. The hall is a simple red brick building, covered with red tiles, and having as little ornament as possible. It affords seating accommodation for 200. The total cost is between £700 and £800. Mr. C. Hodgson Fowler, Durham, was the architect, and the builders were Messrs. M. Otter and Co.

LIVERPOOL.—A movement is on foot to erect a cathedral mosque in true Saracenic style in Brougham Terrace, West Derby Road. Mr. J. H. McGovern, of Liverpool, has made the designs and prepared the plans. The khan will have a frontage to Brougham Terrace, and at the rear of the hostel will be a terrace, courtyard, and central dome tomb. Facing Baker Street and at the corner of Marsden Street the cathedral mosque will be erected at an estimated cost of £6000. Fully 1500 persons will find accommodation in the mosque. Owing to the position of the site, special treatment has been given to it by Mr. McGovern, the architect, so that the Mihrab, or niche for the Koran, which really constitutes a mosque, shall indicate the Kiblah, or direction of Mecca. The mimbar (pulpit) and dikka (tribune) will follow the same direction. Above the aisles will be the galleries, exclusively used by ladies. There will be two minarets in Baker Street. The north one will form the main entrance, and from the south one the azan, or call to prayer, will be given. A third minaret will be situated in Marsden Street. The flat iron concrete roof of the building is to be crowned by a Saracenic dome, which will differ from the Italian dome in its geometrical form.

Two years and a half have been occupied in the construction of the new Central Fire Station, Hatton Garden. The new station is lighted throughout by electricity. The engine-house, stables, general offices, and superintendent's office are situated on the ground floor, and may be approached from either front or rear, the superintendent's office being con-

nected with his private residence, which immediately adjoins it. The first floor is set apart for the night rooms of the firemen and mounted police. From the sleeping room to the engine house runs a brass rod, down which the "on-duty" firemen will slide when alarm is received. There are two spacious kitchens on the second floor, a dormitory for the men not actually on duty, but who will be within call in case of emergency, and bathrooms and lavatories of modern design. The brigade have now at their disposal a hose tower 90ft. in height. The horses are stabled immediately in the rear of the engines.

LONDONDERRY.—A special meeting of the Governors of the Londonderry District Lunatic Asylum has been held to consider the plans and estimates for the new asylum at Granshaw. A letter was read from Mr. Roberts, architect, in which he stated that the plans had been revised by Messrs. Owens and Fuller, with a view to bringing the cost within the amount which the Governors had approved of being expended, £110,000. These plans as revised were now submitted for the consideration of the Board. The estimate for the design amounted to £118,341, and this being an excess of the amount referred to, further reduction had been made by means of which the cost had been reduced to £114,370. But if the Governors considered a further reduction absolutely necessary, a saving of £1700 could be effected by omitting a section of the chronic block on the male side, and probably as the new temporary building would afford accommodation for the same number as this portion of the chronic block would, the Governors might consider it desirable to adopt this revision, which would reduce the total cost to £112,677. He thought it right to state that the revision of the design for the asylum had received very careful consideration from the inspectors and from himself. The plans provided in the most approved and economical form the accommodation required, and the cost of supervision and maintenance in the working of the institution had been most carefully considered. But owing to the increase in the cost of building which had taken place during the last three years, it was difficult to keep the cost of building the asylum within the limits originally contemplated. It was proposed to construct the building altogether of brick in a plain and substantial manner, heated by hot water circulating at low pressure and lighted by electricity. It was decided that notice of motion to rescind the resolution on the minutes with reference to the previous plans should be given at the next monthly meeting.

MAGHERALIN (Ireland).—A new tower and peal of bells in connection with the parish church have just been dedicated. The tower is finished with red sandstone corners and ornamental terminals, and was erected by Mr. J. Campbell, builder, Belfast, under the superintendence of Mr. Drew, architect, Dublin. The bells were cast by Messrs. Taylor, Loughborough.

MANAFON.—The Parish Church at Manafon has been restored. The walls of the east end of the building, which were found to be badly cracked, have been repaired and strengthened by the addition of two buttresses. All the old floors have been relaid—the chancel and sacristy with glazed encaustic tiles, the aisles with red tiles, and under the seats with wood blocks. New heating apparatus has also been put in. The church is entirely re-seated in oak, and two new prayer desks have been added. An oak traceried screen has been placed across the church, forming the chancel, and a lych-gate has been erected at the entrance to the churchyard. All the woodwork is of oak, and the stone has been obtained from the Welshpool quarries. Additions to the furniture of the church are a carved oak pulpit and a fine oak eagle lectern. The work of the restoration has been carried out by Messrs. J. Ward and Sons, Uttoxeter, under the superintendence of Messrs. Douglas and Minshall, architects, Chester.

MARKINCH.—The new United Presbyterian Church at Markinch has been opened. The architect is Mr. Hippolyte J. Blanc, who has adopted the Early English style of Architecture. The building consists of a nave, with transept and aisle, and besides the church proper, which will seat about 500, there are the hall, capable of holding fully 100, vestry, and other conveniences. The building has cost about £2800.

MORECAMBE.—The driving of the last pile in connection with the construction of the Morecambe West End Pier has marked the completion of a scheme, the cost of which is estimated at £60,000. The total length of the pier from the entrance on the promenade is estimated at about three-quarters of a mile, the pierhead being carried out well into deep water. The head of the structure covers about half an acre, and at the sides there will be three landing stages, whilst the top will be utilised for dancing. On this portion it is intended to erect a large bandstand, ladies' and gentlemen's cloak-room accommodation, shelter and temperance refreshment saloons. The contractors are the Widnes Iron Foundry Company, and the architects Messrs. Magnall and Littlewood, of Manchester. Altogether, 198 piles have been used in the structure.

PERTH.—A new consumptive hospital is to be built at Perth. The buildings are proposed to be set so as to have the sun in the rooms all the day long. They are in three blocks, the centre one being the administrative, and the side ones the hospitals. Mr. J. Murray Robertson, Dundee, is the architect.

TERENURE.—The foundation stone has been laid of a new Roman Catholic Church (St. Joseph's) at Terenure. The church will comprise nave, side aisles, transepts, side chapels, spacious sanctuaries, and two sacristies, with heating chamber. The total length will be 120ft., with a width of 30ft. The aisles on each side of the nave will be 48ft. long and 14ft. wide. The height from floor to ceiling will be 51ft., and from floor to apex of roof, 63ft. The columns throughout in the internal arrangement of the building are to be of polished red Aberdeen granite. The height of the spire will be 160ft., and the style of the entire building will be Romanesque. The architect is Mr. Wm. H. Byrne, of 20, Suffolk-street, and the builders are Messrs. Michael Meade and Sons, Great Brunswick-street.

USK (Mon.).—The Grammar School at Usk is to be transformed into an Higher Grade School, and sundry alterations are thus necessitated. The plans have been approved by the Education Department and also by the Scholarship managers; and the work is to proceed immediately under the superintendence of the architect, Mr. P. A. Robson, of Palace Chambers, Westminster. The lowest tender has been accepted from Mr. John Morgan, of Blaenavon, for £487.

WELLINGTON.—All Saints Church, Wellington, is to undergo extensive alteration and repair. The plans have been prepared by Mr. Dalgleish, of Wellington. It is proposed to remodel the interior altogether. At present the wide expanse of plain-coloured walls and ceilings gives the church a somewhat gloomy look, and this will be much modified. The existing unsightly iron columns will be cased with marble, making them more massive and attractive. The new columns and entablature will be of the Doric order on the ground floor and of the Corinthian order above. One new feature will be a lofty and imposing oak screen separating the chancel from the nave, and forming a morning chapel and chamber for the organ.

WOOLWICH, S.E.—A scheme for the alteration and adoption of the National Schools of St. John, Woolwich, has been prepared. It is anticipated that a small outlay will bring them up to modern requirements. The architect for the reconstruction is Mr. Philip A. Robson, of Blackheath, S.E., and Palace Chambers, Westminster, S.W.

Under Discussion.

SOCIETY OF ENGINEERS.

At a meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, on the 2nd inst., Mr. W. Worby Beaumont, President, in the chair, the discussion on the paper "On the Protection of Underground Water Supplies," read by Mr. John C. Thresh, D.Sc., M.D., at the last meeting, was resumed and completed.

SANITARY INSPECTORS AT SWANSEA.

A meeting of the South Wales and Monmouthshire Sanitary Inspectors' Association was held recently at Swansea under the presidency of Dr. Williams, health officer to the county council. A paper on "The Construction of House Drainage" was read by Mr. Llewelyn Davies, chief sanitary inspector to the Swansea Corporation, and it was followed by discussion. Mr. David Jenkins, chief port sanitary inspector at Cardiff, also read a paper on "Port Sanitary Work."

THE INSTITUTION OF CIVIL ENGINEERS.

The Council of the Institution of Civil Engineers has made the following awards for papers read and discussed before the Institution during the past session:—Watt medals and premiums to Messrs. H. L. Callendar and T. Nicolson, B.Sc.; a Telford medal and premium to Mr. A. H. Preece; George Stephenson medals and premiums to Messrs. Whately Elliot and W. O. E. Meade-King; a Crampton prize to Mr. E. W. Anderson; Telford premiums to Messrs. L. B. Atkinson, Henry Fowler, and L. Strange.

DRY DOCKS.

At a meeting of the members of the Belfast Natural History and Philosophical Society, in the Museum, College Square North, Mr. James Maxton, M.I.N.A., M.I.M.E., read a paper in which he gave a brief but comprehensive outline of the evolution of dry docks. In comparing the advantages of the floating dock to those of the graving dock in a harbour at Belfast, he said the former was much cheaper than the latter, and the price can be infinitely stated at the commencement of the tract. It was a self-contained structure, not being affected by doubtful foundations, upward land springs, or the nature of the ground at all. Hence no contingent allowances are required.

LIVERPOOL ENGINEERING SOCIETY.

The annual general meeting of the Liverpool Engineering Society was held at the Royal Institution. Mr. John A. Brodie was elected president, and Messrs. A. B. Holmes and A. F. Aspinall vice-presidents, for the forthcoming session. Mr. A. Musker was appointed honorary librarian, Mr. C. S. Pain a re-elected honorary treasurer, and Mr. C. F. Annett was again elected honorary secretary. The annual report stated that the membership of the Society numbered 384, as compared with 363 at the close of the previous session. The treasurer's statement of accounts showed that at the close of the year there was a balance in hand of £236. Mr. Andrew Hamilton, M.I.N.A., read an interesting paper on the subject of "Diagrams as Illustrating Ship and Engine Performances."

AN ANCIENT SCOTTISH CHURCH.

The Aberdeen Ecclesiological Society recently had the pleasure of hearing a communication by the Rev. W. Macleod, Buchanan, relating to discoveries at the site of an ancient church on Lochmood. The paper described the discovery, an excavation had been made, of the doorway of the ancient church of the parish. The building was abandoned as a place of worship long ago as 1621, it being then in a ruinous state. Subsequent excavations revealed a stone door, with other interesting parts of the ancient fabric. Mr. Macleod indicated that he intends to have the discoveries examined and reported on by a competent architect.

NEWCASTLE OLD TOWN WALLS.

At a meeting of the Newcastle Society of Antiquaries, Mr. R. O. Heslop referred to the discovery, during the excavations at the Guildhall, of part of the old town walls. In the first place, the workmen found three large balls of sandstone, and a second discovery resulted in the finding of four more balls; and as the work proceeded, outside, and at a depth of 3ft. to 4ft., a complete nest of fourteen of these sandstone balls was found. The curator had been able to secure the greater part of these finds for the Castle, and they were now in the guardroom. They were in possession of a good many of these sandstone balls previously, and visitors frequently said, banteringly, that they had come from ornamental garden posts. The stones were found just at the place where they would gravitate from the Half Moon Battery and become embedded in the sand of the Sandhill; and this showed that they were missiles fired either from the Keep or from the walls of the Castle. Some of the smaller stones already in the Castle, which had been dredged from the Tyne, were marked with the Roman figure XII., and some of the balls just found bore the corresponding numeral. The smallest stones measured 12½ in. in diameter. The largest was 21 in. in diameter, but that was rough-hewn, and was probably intended for the next size, 20 in. in diameter. There were no fewer than nine of these 20 in. balls. The balls weighed from 3cwt. to 4cwt., and the catapult by which they were thrown must have been very great indeed. Probably the stones were used for defence; rolled along the parapet into a shoot, they would form a formidable weapon of defence.

ECCLESIOLOGICAL GLEANINGS.

At a recent meeting of the Aberdeen Ecclesiological Society, the President, Rev. Dr. Cooper, read a paper on "Ecclesiological Gleanings from Dr. Crammond's Session Records of Elgin." He proposed to deal more particularly with references to the ecclesiastical buildings in which Elgin and its neighbourhood was rich. Referring first to Pluscarden Priory, he said that building was in use in 1584, the year in which the records of the parish kirk of Elgin began. The Priory was one of the great churches of the district at the Reformation. Dr. Cooper then proceeded to deal with the ecclesiastical buildings in Elgin at the time of the Reformation—St. Giles Kirk, the great Cathedral of Moray, Blackfriars, Greyfriars, and the Chapel of Our Lady, on Lady Hill. The cathedral, he said, seemed to have been abandoned as a place of worship at the Reformation. He noted, however, that the Session Records recorded the interesting fact that divine service was conducted in the building on so late a date as Sunday, 21st April, 1644, and on the following Sunday, proving that the ancient cathedral did not suffer at the hands of the Reformers, but from the cold neglect and indifference of later generations. The records show that for upwards of 200 years after the Reformation, the cathedral continued to be frequented by persons who went either to pray or to amuse themselves. St. Giles Kirk was old in 1560, and it had been designed for quite a different form of worship from that now introduced. Hence the records contain numerous references to alterations on the fabric of the church. One entry records that the people taxed themselves to the amount of £100 for the purpose of providing a bell.—At the close, in commenting on the neglect from which Elgin Cathedral had suffered, Mr. Sibbald condemned the practice of charging for admission to Glasgow Cathedral.—Mr. Patrick Cooper thought they should protest against the Government charging for admission to such buildings as Glasgow Cathedral, St. Giles Church, Edinburgh, and the Cathedral at Dunblane. It was a disgrace to the country.—Dr. Cooper also strongly denounced the system, particularly with regard to St. Margaret's Chapel at Edinburgh Castle. This building, certainly one of the most interesting places in Edinburgh, had been turned into a booth for the sale of photographs.

Views and Reviews.

"THE SCULPTOR."

We have received the numbers for March and April of that new monthly magazine, "The Sculptor," and they are most creditable productions. The illustrations are well done. The magazine's aim is to give effective representation to the sculptor's art. It is not limited to any school or country. The April number contains articles on the Alfred Millenary, Egyptian Sculpture, Flaxman, the Milton of English sculptors, the Work of the Thornycrofts, the Composanto at Genoa; Sculpture in Poetry and Fiction, Art as a Mirror of Civilisation; besides which there are many short articles on both the practical and artistic sides of sculpture. The magazine is beautifully printed on good paper, and its price is sixpence.

"The Sculptor," The Sculptor Publishing Co., 20, Bucklersbury, E.C.

Enquiry Department.

"SPECIFICATION"

Enquiry and Legal Departments.

The replies to queries in the "Enquiry" and "Legal" Departments of the "Builders' Journal" being necessarily limited by consideration of space, readers who wish to obtain more complete and exhaustive answers are recommended to apply to the "Legal" and "Enquiry" Departments of "Specification."

Legal advice and opinions on Professional and Constructional matters will promptly be sent through the post.

Rules with regard to these enquiries will be found on page 2 of "Specification."

Terms of Subscription:—12s. per annum, payable in advance, for the first four quarterly numbers, carriage paid to any part of the United Kingdom. Subscribers abroad are requested to remit an additional 2s. 6d. to cover the extra cost of carriage.

I. C. B. — Will I. C. B. please send us his address? We hold letters which we are unable to forward.

TO BUILD A VILLA.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Your recent correspondent, I. C. B., gives the size of a house he requires a working plan for. The dimensions of the rooms, put into working order, would cube out at about 24,000ft., which at the moderate sum of 4d. per foot, means £400. This he asks for at a sum of £250 to £200.—Yours truly,

A. B.

INSTITUTE EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly tell me the best way to obtain particulars of the R.I.B.A. examinations, and of how to become a student?—I am, yours truly,

STUDENT.

All necessary information is given in the Institute Kalendar for 1897-8, which is to be had on application to the Secretary, R.I.B.A., 9, Conduit Street, Hanover Square, W. The price is half-a-crown.

An inquiry on behalf of the Local Government Board has been held respecting an application by the Bootle Corporation for permission to borrow £2734 for street improvements.

Trade and Craft.

MESSRS. ROTTMANN AND CO.

Messrs. Rottmann and Co. inform us that they have taken additional premises at 25, Garlick Hill (adjoining 26), where they will exhibit their latest novelties in mural decorations for the new season.

MESSRS. ESSEX AND CO.

We have received from Messrs. Essex and Co., the well-known wall paper manufacturers of Westminster and Battersea, their book of new season's designs, which forms a portly volume of decidedly artistic excellence. The book comprises samples ranging in price from 6d. to 8s. per piece, and includes specimens of leather, tapestry, silken, raised flock, cretonne, sanitary, and oil-painted papers, in addition to which there are lithographs of the majority of the designs at about one-eighth of full size, of about 1½ in. to the foot, which are decidedly helpful to those making a selection for furnishing purposes. One of the best designs for a sitting-room is that known as the Bertha, with a trail frieze; and another for similar use is the Maisie design, with a Lancelot frieze. A bold dining-room design is the Aurora, with the Myra frieze, while the Malmsley would go well on staircase and corridor walls. We have selected these at haphazard, but the book is full of good things, which will be obtainable till the end of 1899.

MESSRS. COLLEDGE AND BRIDGEN.

The 212 pp. illustrated catalogue, issued by Messrs. Colledge and Bridgen, of Church Lane, Wolverhampton, is indicative of the very extensive business of the firm as builders' ironmongers, and hardware merchants. A list of buildings where the locks and fittings, which are a special feature of the firm's productions, have been fixed, shows that not only in London, but in the chief towns throughout the provinces, they have commanded great attention. That Messrs. Colledge and Bridgen have established a reputation for themselves in this respect may be better realized, perhaps, when it is stated that no less than eighty pages of their catalogue are entirely devoted to locks and door furniture, including all kinds of rim and mortise locks, stock or plate locks, gate locks, night latches, padlocks, cupboard locks, &c. The firm has a remarkably large selection of handles, finger plates, letter-box plates, centre door knobs, and knockers of an ornamental and plain design. Bolts of all sizes and descriptions are also stocked, as well as sash and casement fasteners and handles, and other window fittings. Hat and coat hooks, and other household fittings which the builder is sometimes directed to supply and fix, are included in the specialties of Messrs. Colledge and Bridgen. Brass and iron butts, from the smallest to the largest size, are catalogued, and likewise brass stair-treads, ventilators, gratings, cast-iron air-bricks, manhole covers and frames, &c. Cisterns, hot and cold water apparatus, and sanitary appliances are amongst the goods supplied from this firm, who also keep a stock of kitcheners and register stoves among their many other house requisites.

PREVENTION OF BOILER INCRUSTATION.

From time to time experiments have been made with a view to finding a means of preventing the formation of incrustation in boilers, and the Carbotron Heating Company, of London and Derby, are the patentees for the United Kingdom of a system which is said to

be effective and reliable. The process consists of the use of chromate salt (bichromate of sodium), which is added in small quantities to the feed water. The calcium contained in the water, in the form of bicarbonate or sulphate, is thrown down in the form of a light sediment at the bottom of the boiler; but the inside surface of the metallic shell remains perfectly clear, without being attacked or corroded in the smallest degree. The sediment thrown down can at once be removed by blowing out the boiler, as it does not adhere to the walls so long as the water contains sufficient chromate salt, and therefore is not detrimental. Neither will an excessive use of chromate salt damage the boiler connections or the packing materials. The advantages of such a system must be obvious, both in the working and wear of the boiler, and in the saving of fuel and the cost of boiler cleaning. The right to use this patent process must be obtained by license from the Carbotron Heating Company.

MESSRS. W. RICHARDSON AND CO.

An excellent series of illustrations of horticultural buildings has been issued by Messrs. W. Richardson and Co., horticultural builders and heating engineers, of Darlington. The first view is a conservatory erected at Oxford, and which was awarded first prize and gold medal at the International Horticultural Exhibition at Earl's Court, in 1892. The design is of a building of 19ft. 6in. in length and 16ft. wide, with four gables, turret, and ornamental details. Several views are shown of other conservatories, attached and detached, constructed in different parts of the country, all of which show skilful execution in design. Other views illustrate the style of work carried out by Messrs. Richardson and Co. in the erection of fruit and plant houses, greenhouses, vineries, band stands, and winter gardens, amongst the most prominent being the two conservatories and band stand constructed by them in the public park at Newport, Mon. and the winter gardens at the Harrogate Hydropathic, and in the public park at Hanley, Staffordshire.

MESSRS. J. D. F. ANDREWS AND CO. LTD.

It is considered that we, on this side of the Atlantic, have been somewhat slow in our appreciation of the value of electricity, but it cannot be denied that to-day electrical work is engaging greater attention than ever previously in this country. In the competitive race the firm of J. D. F. Andrews and Co. Ltd., of the Fulham Electrical Works, Putney Bridge Station, S.W., hold a good position. The patentees of several fittings and systems, they specialise in nearly all branches of electrical work. A speciality is their process of concentric wiring, of which they are the inventors, which is recommended for every kind of installation, as being more economical than the wood casing. The security, double, and conduit wiring systems, for which the firm hold patents, are also highly recommended. Amongst the fittings they have introduced is a new conductor, known as Andrews' Patent Kopperklad, being an insulated conductor enclosed in a copper tube; and the Pull-push Wall Switch, which has a snap action, and is stated to possess unique advantages for contact breaking. The firm has also patented improved distributing switch and fuse boards, and a controlling switch board, the last mentioned being intended for accumulator and dynamo combinations, and combinations of dynamos, shunt or compound. Its principal feature is its simplicity and compactness, it having been designed in such

a way that the engineer can easily ascertain the exact position of the relation of the apparatus. The Andrews' inventions also include two ventilated resistances, designed to occupy little space, and to keep cool. One known as the Louvre pattern, and is for use in cases where the resistance must be stood upright or placed flat against the wall; and the other is the chimney-pot pattern, in cases where the resistance can be placed projecting from the wall or over the space behind the controlling board. The firm possesses several other patents, both for electric-light installation and for telephonic communication.

The Brighton Sanitary Committee have instructed the Borough Surveyor to prepare amended plans and estimates for the artisan houses to be erected on the Lewes Road site, showing a room in the roof instead of back offices, in accordance with the proposed new building bye-laws, and also showing kitchen and scullery combined.

A LOCAL GOVERNMENT BOARD inquiry has been held at Dublin into the applications for loans by the Dublin Corporation of £1300 for converting the site of Green Street Prison House into an open space; £1000 for repaving Bachelor's Walk; £3000 for concreting certain paths; £1900 for new paving; £4800 for repaving; a further sum of £2700 for concreting footways, and £364 for asphaltting.

A SPECIAL meeting of the Liverpool Finance Committee has been held to consider designs for the redecoration of the Town Hall. Originally, designs were obtained from local tradesmen for the interior embellishment of the hall, but the City Council declined to accept any submitted, and it was decided to commission Professor Simpson to furnish designs. These have been on view at the Town Hall.

WRITING to the Times, "A Non-Competitive says: "The distinction of being 'hung' by the Royal Academy is one that lack of space enables the few to realise, yet many pictures are accepted and at the last 'crowded-out'. Could the Committee not be induced to make some official acknowledgment of these works as distinguished from the 'rejected'? might be of the utmost value to unknown struggling artists, as well as serve in a great measure to soften their disappointment, if full list of the names of the 'crowded-out' were once in each season published in your columns. Surely the extra trouble involved to the Hanging Committee would be well repaid by the gratitude such action on their part would invoke?"

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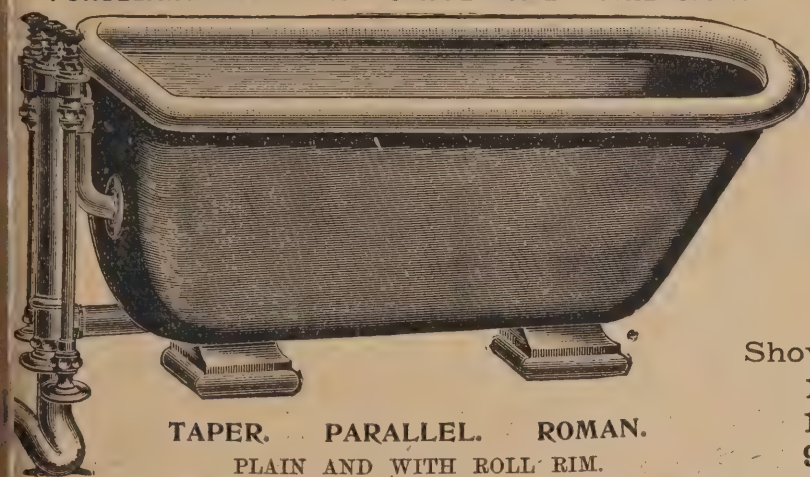
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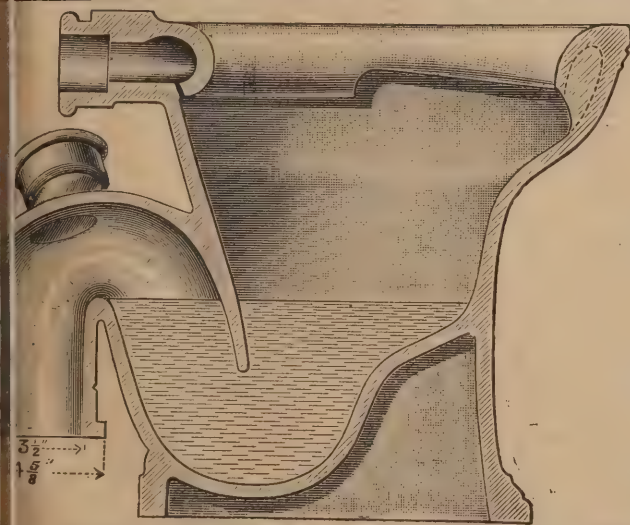
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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

AXMINSTER.—For proposed residence and stabling, entrance lodge, &c., at "Yarty," near Axminster, for Captain C. H. S. Buckle, R.N. Messrs. J. W. Rowell and Son, architects, Newton Abbot. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—
Ham and Passmore ... £5,040 W. J. Granger Whimble* £4,495
Ellis and Sons ... 4,954 Jas. Perkins ... 4,470
Mingo and Boone ... 4,760 Chas. Turner ... 4,456
J. Finning ... 4,550 Stephens & Son, Ltd. ... 4,444
* Accepted.

BARRY DOCK.—For additions, &c., to Culley's Hotel. Messrs. Gethin, Wallace and Robertson, architects, Windsor Chambers, Westgate-street, Cardiff:—
Lloyd and Tape ... £11,020 T. Shepton ... £10,235
Allan Richards ... 10,900 G. and F. Couzens ... 10,095
Cadwallader & Hockridge ... 10,480 A. R. Meredith ... 10,000
D. Davies ... 10,475 James Allen ... 9,856
W. H. Ingleson ... 10,450 John Linton, New-
W. Thomas and Co. ... 10,240 port* ... 9,800
* Provisionally accepted.

BECCLES (Suffolk).—For the erection of a residence, Blythgate-street, for Mr. W. M. Crowfoot. Mr. F. E. Banham, architect, Grange-road, Beccles:—
G. E. Hawes ... £1,547 F. J. Allen's executors £1,490
G. A. Dunn ... 1,525 E. J. Hinde, Beccles* 1,450
* Accepted.

DEVONPORT.—For the erection of pier-master's house, &c., Northcorner, for the Town Council. Mr. J. Burns, Borough Surveyor, Municipal Offices, Ker-street, Devonport:—
T. Jenkin & Son £1,730 0 0 T. C. E. Skinner,
G. Shellabeir and Plymouth* £1,492 0 7
Sons ... 1,625 0 0 * Accepted.

CHESLYN HAY (Staffordshire).—For alterations and additions to Salem Methodist Church, Cheslyn Hay. Messrs. Bailey and McConnel, architects, Bridge-street, Walsall:—
W. Hopkins ... £1,958 0 F. Sprenger ... £1,602 0
F. L. Jones ... 1,903 0 A. Williams ... 1,553 6
W. Wistance ... 1,862 0 J. Dallow ... 1,430 0
J. Mallin ... 1,595 4 T. Mason, Hednes-
S. Wootton ... 1,626 0 ford* ... 1,393 0
R. Barton ... 1,620 0 * Accepted.

CLACTON-ON-SEA.—For the erection of a Holiday Home at Clacton-on-Sea, Essex, in connection with the Sunday School Union. Mr. Chas. Bell, architect, 3, Salters' Hall-court, Cannon-street, London, E.C.:—
W. V. Goad ... £8,264 J. Smith and Son ... £6,939
W. Saunders and Son 8,175 E. West ... 6,800
J. Shillitoe and Son 7,350 H. J. Linzell ... 6,679
H. Everitt and Son 7,115 J. S. Hammond & Son* 6,509
J. W. Dixon ... 7,086 * Accepted.

FARNHAM (Surrey).—For additions to workhouse for the Farnham Union Guardians. Messrs. Friend and Lloyd, architects, Grosvenor-road, Aldershot. Quantities by Mr. A. Ansell, Buckingham-street, Strand:—
W. Smith ... £4,693 Goddard and Sons, Farnham* £4,556
G. Kemp ... 4,629 Crossby and Co. ... 4,695
H. Hutchinson ... 4,600 * Accepted.
Tompsett and Co. ... 4,593

HEATH TOWN (Staffordshire).—For the provision of Board School for 192 children, Woden-road, for the Wednesfield School Board. Mr. F. H. Lines, architect:—
H. Lovatt ... £3,608 6 2 J. C. Holder ... £3,163 0 0
H. Willcock and F. Lindsay Jones 3,150 0 0
Co. ... 3,579 0 0 Bradney & Lloyd 3,130 0 0
J. Jones & Sons 3,450 0 0 T. Tildesley 3,100 0 0
Brookes & Tandy 3,416 0 0 S. Wootton ... 3,050 0 0
G. Brown ... 3,350 0 0 H. Cave ... 3,047 0 0
T. Skett ... 3,348 0 0 F. W. Beard* 2,990 0 0
J. Herbert ... 3,175 0 0 H. Gough ... 2,975 0 0
* Accepted.

KING'S LYNN.—For rebuilding business premises, High-street, for Messrs. Jernyn and Sons. Mr. H. J. Green, architect, Tuesday Market-place, King's Lynn. Quantities by architect:—
J. S. Smith ... £9,040 5 0 Kerridge & Shaw, Cambridge* ... £8,373 0 0
R. Dye ... 8,996 0 0 Bardell Bros., King's Lynn † 8,180 0 0
R. M. Parkinson 8,990 0 0
J. Youngs & Son 8,633 0 0
P. Banyard ... 8,512 14 1
* Accepted conditionally. † Too late.

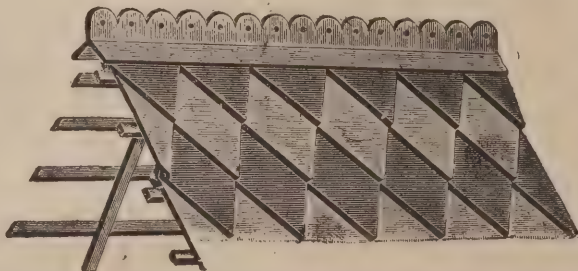
LEYTON.—For the erection of "The Lord Clyde" public house, Leyton, E. Messrs. Foulsham and Herbert Rich, architects, 3, Crooked-lane, King William-street, London, E.C., and Bromley-by-Bow, E. Quantities supplied:—
T. E. Mitchell ... £4,816 A. Porter ... 2,400
Harris and Wardrop ... 4,629 S. R. Lambie ... 2,400
T. Goodall ... 4,681 C. Deering and Son ... 2,400
J. and H. Cocks ... 4,565 G. E. Todd and Co. ... 2,400
T. Osborn and Sons ... 4,493 Percival Hart* ... 2,400
* Accepted.

LLANGADOCK (Wales).—For the erection of a parish church, Gwynfi. Mr. E. H. Burton, architect, 15, Queen-street, Cardiff. Quantities by architect:—
T. and J. Brown £1,500 0 0 Rowland & Lloyd £1,965 0 0
E. Davies & Son 2,653 0 0 D. Thomas ... 1,953 0 0
H. Smith ... 2,365 0 0 B. Howell & Son 1,868 1 0
D. Jenkins ... 2,299 0 0 J. Wm. Morgau, Gwynfi* ... 1,845 12 0
E. G. Groom ... 2,172 0 0
J. E. Evans ... 2,145 19 0 * Accepted.

LONDON.—For Nos. 14, 15, 16, 17, and 18, Tavistock square, W.C.:—
C. W. Potter ... £4,982 West Bros. ... £4,982
Stevens Bros. ... 4,843 Colwill and Son ... 4,843
* Accepted.

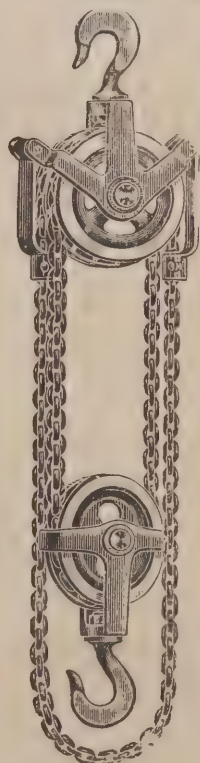
LONDON.—For pulling down and rebuilding Nos. 10 to 12, Broadway, Stratford, E., for Alderman George H. Mr. Edwin C. Stimson, architect, 22, Atherton-road, Forest Gate, E.:—
Verbury and Sons ... £7,993 W. M. Norton ... £7,993
W. Gregar ... 7,969 J. Smith and Son ... 7,969
G. J. Hosking ... 7,740 W. Shummar ... 7,740
W. Downs ... 7,667 A. Reed and Son ... 7,667
Colls and Sons ... 7,665 W. H. Lorden & Son ... 7,665
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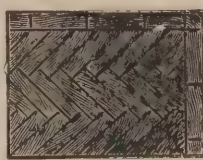
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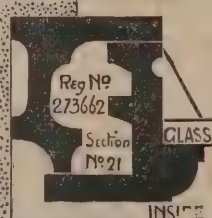
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LONDON.—For pulling down and rebuilding the "Gladstone" beer-house, Walworth, S.E., for the Winchester Brewery Company, Limited. Mr. T. Walter Moss, architect:—

J. Ansell ... £1,653 | Ham and Son ... £1,396
V. Smith ... 1,428 | Summerford ... 1,333

LONDON.—For new roads, sewers, and branch drains on the Ealing Common Estate, Acton Hill, W., for the Kensington Freehold Land Trust Ltd., Mr. Edward Monson, surveyor, Acton-vale, W.:—

H. Neave ... £6,997 | Griffiths and Co. ... £5,990
J. J. Greenham ... 6,510 | H. Morecroft, Acton,
Finney and Co. ... 6,284 | W. (Accepted) ... 5,296
Jewell and Co. ... 6,946 | Ballard and Co. ... 4,979

LONDON.—For alterations and improvements to Nos. 2, 4, 6, and 8, Tavistock-square, W.C. Mr. W. Ernest Hayell, architect, 23, Moorgate-street:—

Levens Bros. ... £3,235 10 0 | West Bros.* ... £3,154 0 0
Gill and Sons ... 3,167 5 6 | *Accepted.

LONDON.—For the formation of roads and sewers to portion of the Spencer Smith Estate, Victoria Docks, E. Messrs. J. T. Newman and Jacques, architects, 2, Fenchurch, E.C.:—

Gibbs and Co. ... £3,071 | T. Addms ... £3,246
J. Griffiths ... 2,790 | John Jackson* ... 1,940
*Accepted.

LONDON.—Accepted for providing and fixing shop front and fittings, 30, Newgate-street, for Messrs. Lilley and Kinner, Limited. Mr. A. Sykes, architect, 45, Finsbury-avenue, E.C.:—

Sims and Woods, Brownlow-mews, Gray's Inn-road £478

LONDON.—For alterations and decorative works at No. 6, Samore-place, W., for Mr. W. Tebb. Mr. Philip A. Todd, architect:—

S. Buckeridge ... £1,295 | Jos. Cannon ... £1,173
H. Kelland ... 1,243

LONDON.—For addition to premises at Hanover Park Conservative Club, Peckham, under direction of Mr. F. G. Fletcher, 61 and 63, Chancery-lane, W.C.:—

W. T. Champion ... £573 | G. Parker ... £545
Smithers and Port ... 571 | H. Lane ... 536

LONDON.—Accepted for alterations, No. 31, Old Jewry, for Messrs. Freshfields and Williams. Messrs. Barnes-Williams, Ford, and Griffin, architects:—

Colls and Sons ... £7,172
LONDON.—For work at "Gwynne House," Woodford, E. Mr. Herbert Riches, 3, Crooked-lane, King William-street, London, E.C., architect:—

T. Osborn and Sons, Work to greenhouses, stabling, etc. (accepted) ... £390
W. Tagg, General decorations to house (accepted) ... 250

LONDON.—For the erection of the "Lord Clyde" public-house, Leyton, E. Messrs. Foulsham and Herbert Riches, 3, Crooked-lane, King William-street, London, E.C., and Bromley-by-Bow, E., architects. Quantities supplied:—

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Harris and Wardrop ... 4,620 | S. R. Lambie ... 4,493
T. Goodall ... 4,581 | G. Dearing and Son ... 4,370
J. and H. Cocks ... 4,565 | G. E. Todd and Co. ... 4,327
T. Osborn and Sons ... 4,498 | Percival Hart* ... 4,151
*Accepted.

LONDON.—For repairs to shop premises, Newington Green-road, London, N. Messrs. Foulsham and Herbert Riches, 3, Crooked-lane, King William-street, London, E.C., and Bromley-by-Bow, architects:—

B. Blissenden (accepted) ... £205.

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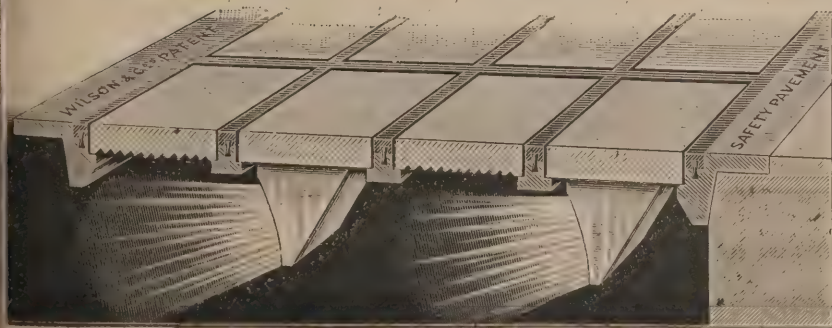
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Architect and Engineer
at the A.A.

A MOST inter-
esting discussion

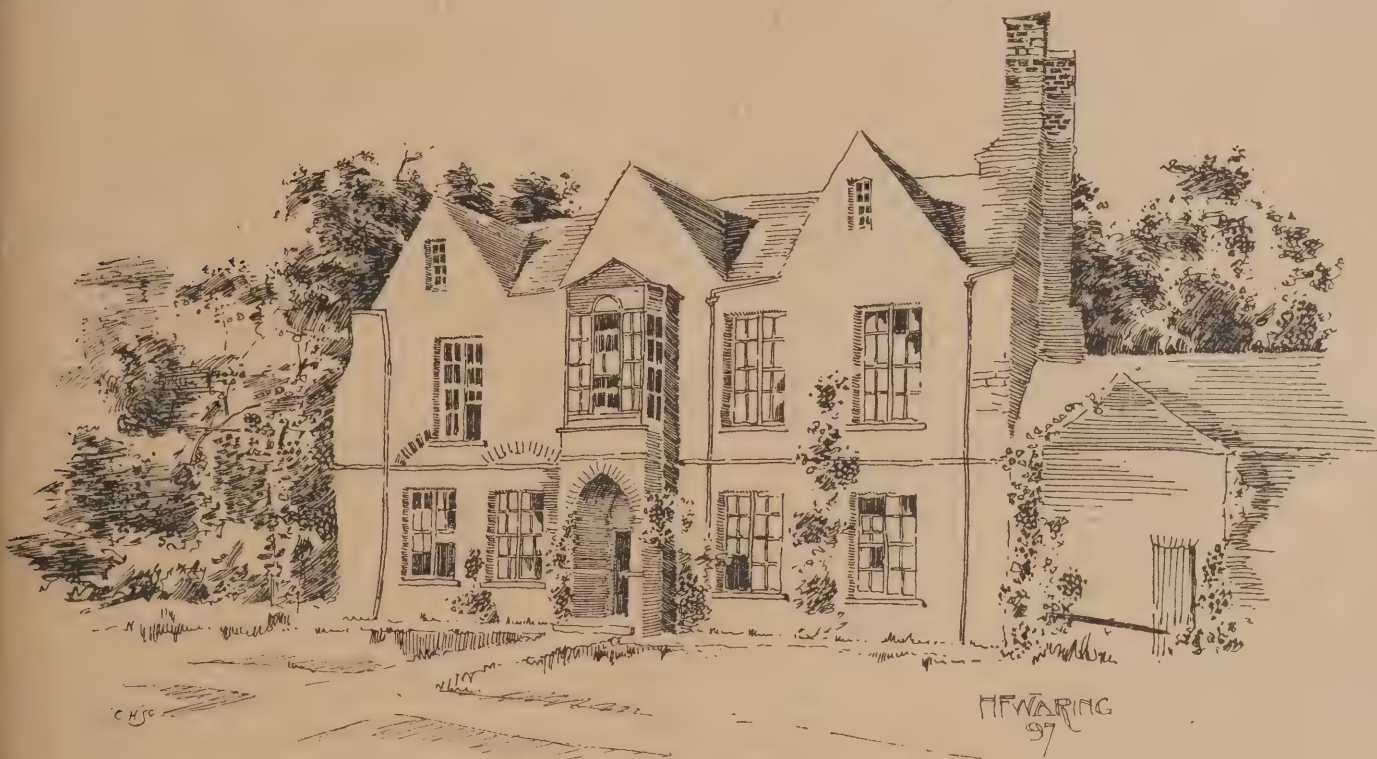
was held at an
architectural Association meeting a short time
ago on the relations between the architect and
the engineer. It seems to have been generally
agreed to by everyone that the present-day
architect is expected to know and to do too
much; and that, taking into account the many-
sided functions he is called upon to fulfil, it

tural design necessitates being a specialist
in construction. An artist in construction
who cannot construct is an impossible
absurdity—a contradiction in terms. If
he has not the knowledge to construct
in steel and iron, why does he use these
materials? So far as they are concerned,
he is no architect at all. To cover up
another man's construction with a piece
of decorated fibrous plaster is not Archi-
tecture; the Architecture lies in the con-
struction. If the engineer would only feel
as well as think, he would be the architect.
There is a saying—attributed to Mons.
Charles Garnier—that "an engineer is an
architect who has not completed his educa-
tion." If engineers in this country could
only realize how little knowledge and skill is
required to produce what passes for Archi-
tecture nowadays, they would soon complete
their education, and we should find our occu-
pation gone. It is, perhaps, an open question
whether iron is, after all, a suitable material
for building purposes; that is, for buildings
of a permanent and monumental character.
Many architects do not think it is, and there-
fore do not use it. Such an attitude is con-

temporary, for it is natural for man to take a
delight in the work of his hands. The men
who build such structures might well have a
special name to distinguish them from archi-
tects, only there does not seem to be any
particular need for them. A good work of
Architecture is just as convenient, just as
scientific—in fact, includes every excellence
of a work of engineering. Why then have
the less, when we can have the greater?
Why put a lighthouse, for instance, into the
hands of a man who looks upon its erection
as a purely commercial or professional trans-
action, when it might have been given to
another, just as scientific, just as practical,
but who added to that a passion for beauty,
and a capacity for sacrificing himself and his
interests to obtain it? A. R. J.

Colour of Materials in Architecture.

In passing through
an English town we
are continually
brought face to face with new buildings
which irritate us by their lack of form and
unhappy combinations of colour. It would



SIR WALTER RALEIGH'S HOUSE AT YOUGHAL. IN ILLUSTRATION OF "A PICTURESQUE IRISH SEAPORT."

out of the question that he should be able
to compete, on his own ground, with the
specialist in construction—the engineer.
Therefore let the architect avail himself of
the special knowledge of the engineer; let
the bonds of friendship, of mutual co-opera-
tion, be drawn closer; so that the specialist
in construction and the specialist in design—
the man of Science and the man of Art—
may combine to produce a superior building,
to the honour and glory and material advan-
tage of both. Such a conclusion as this,
though it seems at first sight to be eminently
sensible and reasonable, is yet really based
on a total misconception of the true nature
of Architecture; and although, in the present
confusion of ideas and absence of knowledge,
such a division of labour may have some
practical value as a temporary makeshift, yet
it is a settled policy—as an ideal—it leaks
nowhere, and is calculated to destroy the only
raison d'être of the architect. The archi-
tect is an artist—that has now come to be
understood; but his art is the art of build-
ing, of construction—that seems here to be
overlooked. To be a specialist in architec-

ture is not fit for use there is no
need to be acquainted with its properties;
but if it is fit for use it must be understood,
and forms must be given it suitable to its
nature and functions. To build with iron in
this way is Architecture, just the same as to
build with stone or brick or wood. There is,
therefore, no need to invent a new name for
it. There is no doubt that, in this age of
keen competition, the architect, like the
student of science, finds it necessary to
specialise; to limit his activities as much as
possible to one thing, so that he may excel
in that. But is he going the right way
about it in handing over construction to
the engineer? Architecture no doubt is
a strenuous calling; it is no fit occupa-
tion for the weakling or the dullard,
but if a man confines himself to the real
essence of his work—the art of construction
—and does not waste his time and energies
on surveying, estate agency, ancient lights,
&c., a competent knowledge would not be
beyond his scope. It may be that there is a
demand for structures of a purely utilitarian
character. If so, it is probably only tem-

porary, for it is natural for man to take a
delight in the work of his hands. The men
who build such structures might well have a
special name to distinguish them from archi-
tects, only there does not seem to be any
particular need for them. A good work of
Architecture is just as convenient, just as
scientific—in fact, includes every excellence
of a work of engineering. Why then have
the less, when we can have the greater?
Why put a lighthouse, for instance, into the
hands of a man who looks upon its erection
as a purely commercial or professional trans-
action, when it might have been given to
another, just as scientific, just as practical,
but who added to that a passion for beauty,
and a capacity for sacrificing himself and his
interests to obtain it? A. R. J.

colour outraged our senses; add, however, the happy relation in which one material stands to another, and we get almost perfection. This selection of bricks, tiles, slate, and the different kinds of wood and stone used in ordinary building might receive more careful choosing than we are in the habit of giving to such practical matters. It is not altogether a question of sentiment that a house should be built as far as possible with the materials of the district in which it is erected, for, by so doing, the probability, all things being equal, of the building harmonising with its surroundings is enhanced. It is possible, perhaps, to carry this idea too far; for, while we may now think it advisable from artistic motives to do so, there is little doubt that the house builders of the Middle Ages built in this fashion for economical reasons, just as the modern architect fetches his materials in the majority of cases from the cheapest markets. To attribute to the mediæval builder a conscious artistic thoughtfulness in erecting his building with such materials as he found in the district is a pleasing notion, but the more we know of that period the less likely does it appear to be accurate. Difficulties of transit, and the almost complete isolation of one village or town from another, gives a more likely reason for the use of materials that were to hand. Nowadays the conditions are reversed. Experience over and over again goes to prove that stone and other ordinary materials found in the district where it is proposed to build are very often more expensive to obtain than those sent by rail some distance away, where a quarry is in full working order. However much, therefore, we might wish to use the materials of the district, the conditions of building have so changed as to render it well nigh impossible—at any rate, to the same extent as of old. The choice of colour of material should, for this very reason, be even more carefully selected when obtained from other districts. Without laying down any hard and fast rule for the ways in which colour in materials should be utilised, there are one or two methods which seem to be effective. Keep each material in masses, and not fritter away the breadth of the building by dotting the materials about the structure. Supposing the building to be mainly of brick and stone, let it be used like, say, Norman Shaw's building on the Embankment, the University Settlement in Tavistock Place, or the second premiated design for the Colchester Town Hall. Each of these buildings arrest attention by the happy use of colour in the materials employed. The simpler a building is in form, the stronger, we are inclined to think, the colour of the materials may be. Where there is a tendency to lose sight of form as a primary consideration in design, brilliant colour in the materials should be avoided. In some of Sedding's work we find a tendency to combine playful form in strongly coloured and marked materials, the result seldom being successful. Of all modern architects, Phillip Webb and Norman Shaw would seem to be the best for studying the many legitimate effects to be obtained by the juxtaposition of materials and colour in Architecture.

G. LL. M.

THE restoration of the tower of St. Leonard's Church, Malton, has just been completed. The work has cost £1400.

THE new Mission Church at Draughton has been built in the Gothic style from plans prepared by Mr. B. Emmott, of Addingham. The total cost is about £450.

A MEMORIAL WINDOW has been erected in St. Mark's Established Church, Dundee. The window consists of four panels in stained glass. Each contains a symbolic figure. The work has been executed by Messrs. Stephen Adams and Son, Glasgow.

SOME CHURCHES OF SICILY:

AND SOME NOTABLE INTERIORS.

THE Palatine chapel at Palermo, and the cathedral of Monreale, Sicily, stand among the world's most distinguished examples of sumptuousness in church interior decoration. Both are frequently cited by architectural critics as instances in which ornament, while carried to an extreme of elaboration and richness, has yet been subordinated to a devout and worshipful feeling. Both buildings survive from the period of the Norman dynasty of kings in Sicily, and both present features in the details of their ornamentation which perpetuate the Eastern style of the Saracenic period which preceded the Norman. The Palatine chapel is not a building by itself. It forms part of the group which constitute the

OLD ROYAL PALACE AT PALERMO.

It is in fact but a room among rooms, having but one entrance from the open air, and a few small windows in the lower walls. Practically the whole of the lighting is from eight windows in the cupola; the nave is thus left in comparative darkness, while the choir and chancel are illuminated, with striking effect. We cull the description of Palatine chapel given by Mr. William Agnew Paton in his book on "Picturesque Sicily." "The interior, consisting of a nave, aisles, and triple apse, is 108ft. in length, including the eastern apse, and 42ft. in width. Ten columns of Egyptian granite and Greek marble, 16ft. in height, uphold Saracenic pointed and stilted arches, which in turn support walls encrusted with mosaics; and above all is a curiously carved wooden roof resembling the vault of a cavern of stalactites in the early stages of their formation. In modelling, the ceiling reminds one of that in the Sala de los Abencerrages in the Alhambra, save that what is there pearly white is here bronzed, painted, and golden; that

SHOWING LIKE WHITEST MARBLE,

this like jasper. Five marble steps lead to the choir, over which rises a dome 75ft. in height, solidly encrusted with mosaics, except where eight windows pierce the wall. All the floors of the chapel are covered with inlaid marble plates, and the walls above 'cipollino' wainscoting, in the aisles and above the capitals of the pillars in the nave, are overlaid with exquisite pictorial mosaics, in which large quantities of lapis lazuli, not to mention more precious stones, have been lavishly used. All the mosaics are on a golden ground, ornamented, radiant with Oriental colours, harmonious, splendid. The pictorial mosaics in La Palatina, as do those in the Cathedral of Monreale, the paintings on the walls of Campo Santo, in Pisa, and the frescoes by Giotto in the Arena chapel in Padua, represent subjects drawn from the Old Testament, the life of Christ, and the lives of His apostles, particularly from the life of St. Peter, who is said to have preached in

THE PRIMITIVE CHURCH

which he established on this same site when he was returning from Africa to Rome to meet his death on the Janiculum, where is now the Chapel of San Pietro in Montorio. On the right of the nave, by the steps leading to the choir, is a pulpit (a plain cube of red porphyry with a frieze of white marble encrusted with mosaics and inlaid with dainty geometrical patterns of the same material), borne aloft on four marble columns exquisitely engraved and delicately carved. The frank simplicity of the design and the unostentatious enriching of the work are most charming. To have highly embellished the rare material of which this piece is composed would be 'to gild refined gold, to paint the lily.' By the pulpit stands a very ancient carved white candelabrum 14ft. in height. Some say King Roger imported it from the East, others that it was wrought by Norman-Sicilian artists. In either case, it bears witness to the wonderful degree of perfection to which the art of carving in stone was carried in the days when it was chiselled from the solid block. Between the shadows of the nave and the brightness of the choir,

almost directly above the steps leading to the latter, there hangs a large silver lamp, said to have been also the gift of King Roger. It is a fine specimen of repoussé work, the great size and beauty of which testify to the wealth and munificence of the donor and to the skill of his silversmiths. But in the midst of the splendour of general effect the richness even of such details of adornment is overlooked.

THE CATHEDRAL OF MONREALE,

situated about four miles from Palermo, was founded in A.D. 1174, by William II., called 'The Good,' with the avowed purpose of erecting a church which should surpass in magnificence all others in Sicily. The building was finished and consecrated in A.D. 1182. The exterior of the cathedral is very unpretentious. It was never finished, and it entirely lacks the enrichment which was bestowed on the interior. Monreale has a nave and two aisles; two rows of nine columns of Oriental granite support stilted and pointed arches, above which are nine windows in the clerestory; other windows admit light to the aisles. The choir and transept (the latter taking in the width of the aisles) form a Latin cross; the floor is here raised above that of the nave, and is reached by seven steps within a beautiful altar rail of carved marble. The nave and aisles have apses at their eastern extremities; that of the nave, in which is the high altar, is of striking proportions and impressive size; the other two, less elevated, contain smaller altars. All the openings, the

GRAND ARCHES OF THE CHOIR,

the vaulting of the aisles, the windows and doors, are of the style adopted by Arab architects of the eleventh and twelfth centuries, but in the details of construction and ornamentation Monreale belongs to no one school of art. The splendid work of Norman-Sicilian artists is 'Latin in its shape, Roman in its colonnade, Byzantine in its mosaics, Greek in its sculpture, Saracenic and Norman in its many mouldings' (and, we may add, baroque as to its restorations), exhibiting a 'most curious combination of styles.' The eighteen columns of Oriental granite are monoliths taken from Greek and Roman buildings. Some of the capitals are antique, but a greater part are of the age of the founding of Monreale. These last are of similar patterns, 'exhibiting foliage, volutes in the shape of cornucopias with figures intermixed,' and all are of the most delicate workmanship, such as the Byzantine Greeks knew how to fashion. On one capital is a curious group representing King William in the act of introducing the archbishop to the Holy Virgin, emblematic of the subordination of Church to State, a characteristically Norman way of asserting the divine right of heaven-anointed kings. The lower walls of both aisles and of the choir and apse are wainscotted with plates of cipollino, surmounted by a Saracenic trefoil of rich marble on a ground of mosaics, which, as in the portico of La Palatina, has the appearance of white satin hangings with embroidered silk borders."

A NEW wing to Salisbury School has been erected at a cost of over £2000.

ST. HELEN'S Town Council has decided to construct a subway for gas pipes, water mains &c., in Church Street, the principal thoroughfare of the town, at a cost of £6750.

THE Streets and Buildings Committee of Edinburgh Town Council has recommended approval of plans of a new bridge proposed to be erected over the Water of Leith at Bonnington, at a probable cost of £5500.

THE Launceston Town Council has approved of the plans for the new cattle market at Race Hill prepared by Mr. Horace Kittow. Accommodation will be made for 2240 sheep and about 700 bullocks, the expenditure to be limited to £3500.

THE East Sussex County Council has decided to purchase the greater part of the Hellingly Park Farm and part of the Park Wood, containing altogether about 400 acres, as a site for the proposed new asylum, and have appointed Mr. George T. Hine, of 35, Parliament Street, S.W., to be the architect.

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THE CLOCK TOWER, YOUGHAL. IN ILLUSTRATION OF "A PICTURESQUE IRISH SEAPORT."



A CORNER IN YOUGHAL. IN ILLUSTRATION OF "A PICTURESQUE IRISH SEAPORT."

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A PICTURESQUE IRISH SEAPORT.

IN AND ABOUT YOUGHAL.

BY H. F. WARING.

I.

SITUATED in the South of Ireland, at the mouth of the River Blackwater, the small old-fashioned seaport town of Youghal, seen from the coasts, presents an appearance which is decidedly foreign, and with the river reaching far away, backed by the distant hills of Waterford, the picture is one of great beauty.

The place was anciently called Eo-chaille, which signifies the forest of yew trees, many remains of which are constantly found beneath the surface of the neighbouring country. In this neighbourhood, at the beginning of the sixth century, Christianity had almost supplanted Druidism. The early preachers, however, with the hope of doing less violence to the native feelings, retained many of the olden sites and relics and changed alone their name and object. The sites deemed religious were continued as such, and the Christian Church began to take the place of the Pagan altar. In the early part of the sixth century St. Molanfidé founded an Abbey of Regular Canons at Dair-Inis, a celebrated establishment of the Druids, who found in the leafy solitude of Glendyne all the accessories required by the forms of their religion.

About the year 680 a church was founded at Eo-chaille, the old site of which is now partially occupied by the later church of St. Mary's. The doorway of this early church was built up in the thirteenth century, and an Early English window inserted in the wall above, but the outline may still be seen in the wall of St. Mary's. It is a plain circular arch, without columns or mouldings, and has not even a chamfer around its edges, the workmanship being of the rudest description.

In the middle of the ninth century a great storm broke over the country, which had the effect of changing the course of the Blackwater, its mouth being now several miles from the original situation. A few years later three Norwegian brothers landed in Ireland with a large army; Dublin was seized by one, Limerick fell to the share of the second, whilst the third built himself the city of Waterford. A detachment of these troops entrenched themselves at Eo-chaille, on the newly-formed embouchure of the Blackwater, where they built a fortress, and laid the foundations of a commercial seaport.

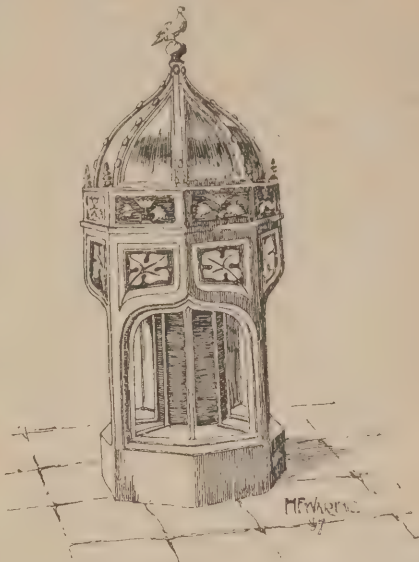
In the beginning of the eleventh century Christianity received a great impulse in the neighbourhood of Eo-chaille, and many small primitive chapels were rebuilt in the Norman style, many interesting relics being found in the district. The early Saxon church having fallen to decay, a large Norman church was erected on the old site. This, however, was shortly to be replaced by a still more spacious building, in order to find room for the rapidly increasing population of the now thriving town.

In 1183 the Order of the Knight Templars was confirmed, and soon after a preceptory was erected on the summit of the commanding promontory of Rhincrow, which overlooks the Blackwater. Certainly these old knights had an eye for the beautiful! The ruins of this feudal fortress are extensive, covering a considerable part of the top of the hill. Numerous heaps, overrun with bramble and covered with moss and weeds, give the outlines of a large, irregular quadrangle, and the chapel, cloisters, refectory, kitchen, and dormitories of the Pilgrim Knights may be traced. The chapel is an open ruin, measuring in the interior 58ft. by 27ft., the walls of which are 3½ft. in thickness. The lower proportions of the east window, which was wholly destitute of mouldings or ornament, are in good preservation, and in the side walls are two circular-headed Norman windows, fixing the date of the edifice. At the west end there still remain portions of the great doorway, on either side of which is a narrow lancet. Of the cloisters some low broken walls are the only remnants.

The dining hall, or refectory, forms, according to usage, a right angle with the chapel, and stands north and south. It measures inside walls 41ft. by 7½ft., and at the springing of the arch of the vaulted ceiling, which still covers in the old building, the walls are 5½ft. thick. The stones, like the rest of the material of the abbey, are very small, as if quarried on the top of the hill.

The refectory was lighted by seven deeply splayed spike-holes, four in the east wall, two in the south, and one in the north-east. There were three entrances. The great portal, which stood between the chapel and cloister, a second lesser door opening upon the cloister, and a third for servants communicating with the kitchen. This latter building, with its cellars, is at the north end of the dining hall. As was customary, over the refectory and kitchen were the dormitories, the walls of which are in part standing. From this upper floor the view of the town and harbour, as well as of the county Waterford—as far as Ardmore, is exceedingly fine.

The Collegiate Church of the Virgin Mary is of considerable interest, and was rebuilt on the site by the Earl of Desmond in 1464. It is cruciform in plan, the nave being 135ft. long and 66ft. wide, and until quite recently was the only part used for worship, the remainder of the church being roofless. The east window is in very good repair, and is an excellent specimen of the Early English Flamboyant style. On the north side, away from



FONT, ST. MARY'S CHURCH, YOUGHAL.

the church, stands a square tower 63ft. high, overlooking the town walls which are very near, and it was evidently intended to answer as well for a place of defence as for a belfry, to which it is now appropriated.

The transepts were used as chapels, and in 1606 the Earl of Cork purchased the southern one from the mayor and corporation, and in it erected a large and very quaint tomb for himself and his family.

The Perpendicular font is extremely good. It is octagonal, supported on four moulded pillars, terminating in four ogee arches, their spandrels sunk and filled in with vine leaves. In the centre of the four pillars is one of larger size, from which arches spring to the outer ones, forming a scarce example of Perpendicular vaulting, in which several arches sprung from a single central column. It has an oak ogee-shaped canopy of the Tudor period surmounted by a gilt dove. Recently this font was cleaned under the superintendence of Dr. Jones, the vicar, and Mr. Stewart, the curate, who take a great interest in their church, and during the process of cleaning eleven coats of paint were found upon it.

The chancel was unroofed by the last Earl of Desmond, who sacked Youghal in 1579, and it remained in ruins until about thirty years ago. The church formerly terminated in an apse, but this in the restoration has been done away with.

The entrance to the choir at the south side is through a recessed porch, for which purpose use is made of a large buttress with good effect. At the south side of the altar are triple sedilia and piscina grouped in one design. Opposite this is a good Perpendicular altar tomb.

The Bishop of Cloyne, as warden, has a throne in the nave, but this has no pretensions to beauty.

Although no trace of the rood screen remains, the steps which originally led up to it are still intact.

In the old portion of the building, probably the thirteenth century work, ancient masonic marks may be seen. It is generally supposed they were put there by the builders.

Adjoining the church is the house where that fine old gentleman, Sir Walter Raleigh, resided during the years 1588—89, when he filled the office of Chief Magistrate of the town. In 1602 he disposed of his Irish estates to Sir W. Boyle, created Earl of Cork; the house was afterwards tenanted by Sir Lawrence



A STREET IN YOUGHAL.

Parson and Sir William Hedges. The windows have unfortunately been modernized, and instead of the leaded lights, sash windows are inserted. The position of the staircase is also changed. From the large dining-room a subterranean passage used to connect the church tower. In one of the kitchens the ancient wide-arched fireplace remains, but is disused. The walls are mostly wainscotted in oak, which is not however improved by being covered with canvas, grained in the typical manner of twenty years ago. The present tenant, however, is taking this down. The drawing-room contains a magnificent carved Elizabethan mantelpiece, rising to the ceiling. The cornice rests upon the three figures representing Faith, Hope, and Charity, between which are enriched circular panels, and a variety of emblematical devices fill up the rest of the structure. In this room there is also some good furniture, especially a small table. I was unfortunate in not being able to get any interior sketches here, but the present tenant was away. In an adjoining bedroom is another good mantelpiece of oak with Dutch tiles, and lately, behind the wainscoting of this room, a recess was revealed in which part of the old Monkish library, hidden at the period of the Reformation, was discovered.

The grounds are remarkable for the luxuriant growth of myrtles, bays, arbutus, and various exotics in the open air, the myrtles flourishing so well here that they gave rise to the name of Myrtle Grove. Of course, the visit to the grounds is not complete without having seen the spot where the unfortunate accident to Sir Walter took place with reference to his first pipe of tobacco. Here also one is shown where potatoes were first planted in Ireland.

OUR PROGRESSIVE POLICY.

We again announce a further increase in size of "The Builders' Journal and Architectural Record." The steady progress we have made in three years—signalled, as it has been, at regular intervals, by increases in the number of our pages—has secured the appreciation of readers and advertisers alike.

It is this never-failing mark of approval which prompts us to further enterprise. In the present issue is included, in place of our ordinary four-page "Surveying and Sanitary Supplement," a special **EIGHT-PAGE SUPPLEMENT**, which it is intended shall appeal as strongly to the Builder, the Surveyor, and the Sanitary Engineer as the body of the Journal does to the Architect and the Craftsman.

We also give, as an Extra Supplement, Two Double-page Litho. Illustrations.

Our aim is to make "The Builders' Journal and Architectural Record" the most representative of the many interests bound up with the Profession of Architecture and the Trade of Building, and we believe that we have already attained an unparalleled success in this direction. In "The Builders' Journal" the subscriber has a Magazine of nearly fifty pages, all for One Penny—twenty-five per cent. below the price of the old-fashioned professional fourpenny weeklies.

ANCIENT REMAINS.

RUTHLESS DESTRUCTION IN MONMOUTHSHIRE.

THE old remains at Llanhilleth, on the mountain top between Aberbeeg and Pontypool, have been very largely destroyed. It seems that about eight years ago the inhabitants instituted a sheep and cattle fair here, which has met with some success, and, in order that more facilities for the fair might be obtained, the proprietor determined to take advantage of the glut of labour caused by the strike to put on a number of hands to completely level the old tumps, rings, &c., and pick out the stones from the old ruins to build a wall around the fair ground; and so much speed has been made that more than half of

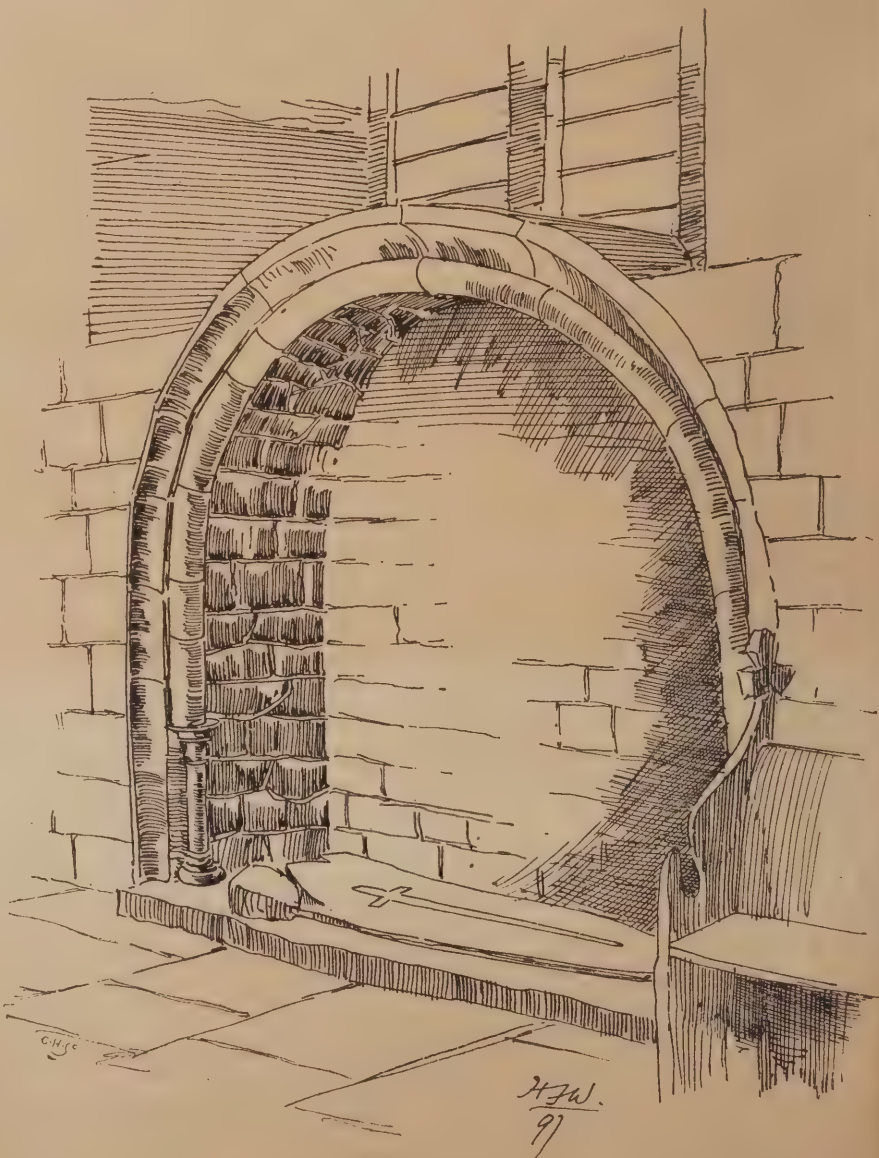
THE TWO PRINCIPAL MOUNDS

are scattered abroad, and mounds of the stones have been formed in readiness for the proposed wall. The digging in the most westerly mound has disclosed walls, square and well built, and of considerable thickness, with an apparent doorway. At first appearance this wall seems to be built of dry stones. A closer examination discloses that they have been mortared, but that the mortar had in a great measure perished. Near here a small fragment of Roman-British pottery, and a very tiny scrap of Samian, is to be seen, but it is so little, says Mr. John Storrie, writing in the Western Mail, that it would not be safe to infer therefrom that the walls were Roman. About 4yds. further east the interior wall-face of an octagonal apartment was found,

about 8ft. in greatest diameter, but the outer wall-face had been stripped off and put on the stone pile. From the earth removed from this octagon I was able to discover a metal ring, like a button mould, and a round metal object which, when carefully cleaned, turns out to be a billon Roman Imperial coin of Trebunius having on the reverse a draped figure, with sceptre in the left hand, and holding out an olive branch with the right, the inscription being "Pax Aeterna." It is a little larger than a third brass. In Cox's "Monmouthshire," Vol. II., pp. 252-4, he says:—"At Llanhiddel (the way he spells it) we baited our horses in a public-house, and strolled in the midst of a violent shower to the church, which is situated on the summit. It is a small but ancient Gothic building, constructed in the most simple form,

WITHOUT A TOWER OR BELFRY,

the bells being under the roof, and the ropes descending into the church. The churchyard is planted with twelve old yew trees, which surround the church, and add to the solemnity of the scene. It is dedicated to St. Ithel, with whose merits or genealogy I am totally unacquainted. On the north-eastern side of the church are the remains of a fortified post, consisting of a small tumulus and a circular entrenchment, which communicated with others. Within the latter are vestiges of subterranean walls, faced with hewn stone, and no less than 9ft. thick. At a little distance to the west is a high mound or barrow. These are the remains of an ancient fortress, called Castell Taliurum by the natives, who could not explain its meaning, but said it was neither Welsh nor English. These words are supposed to be a corruption of Castrum Italiorum."

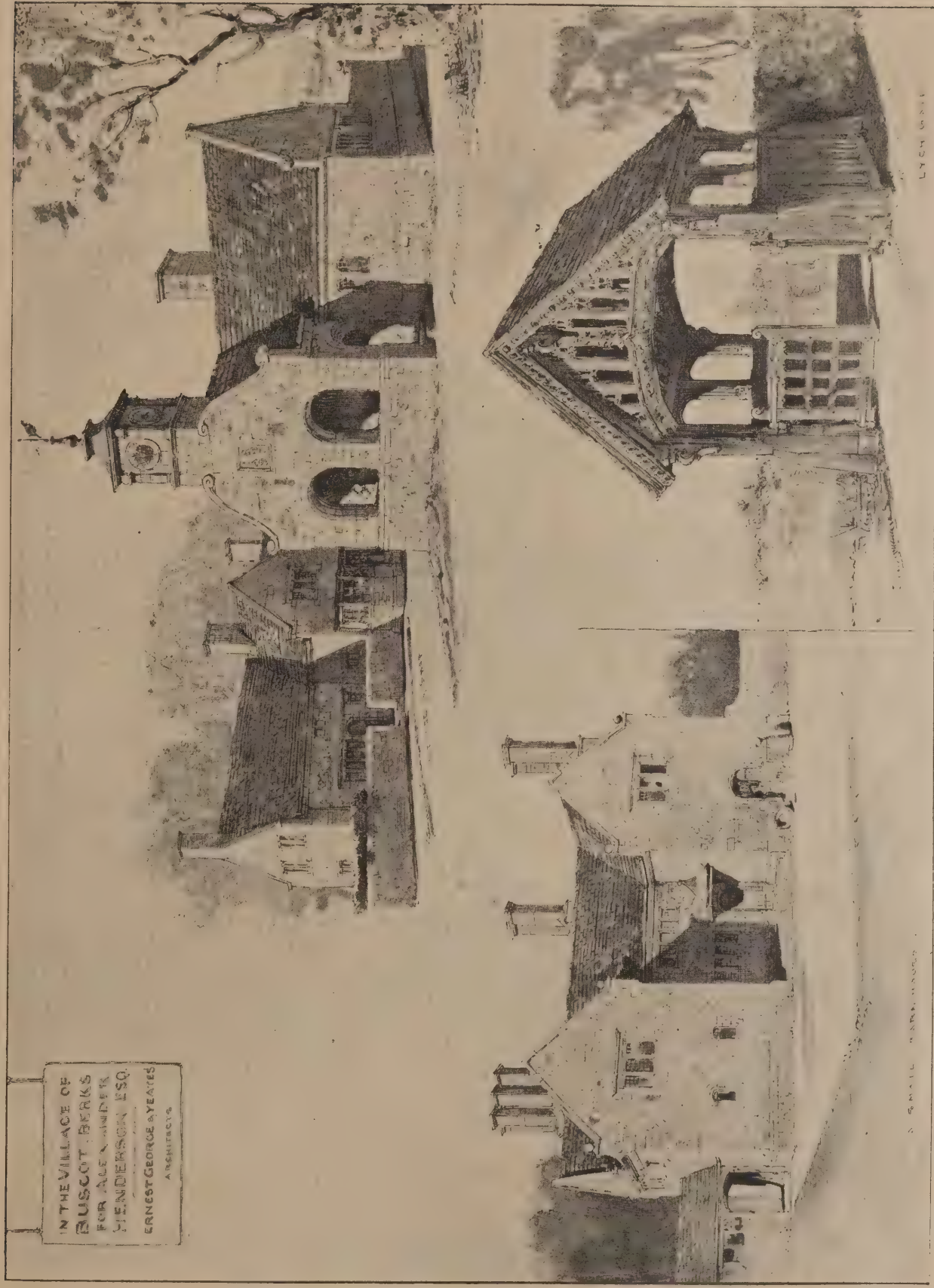


A NORMAN TOMB, ST. MARY'S CHURCH, YOUGHAL.

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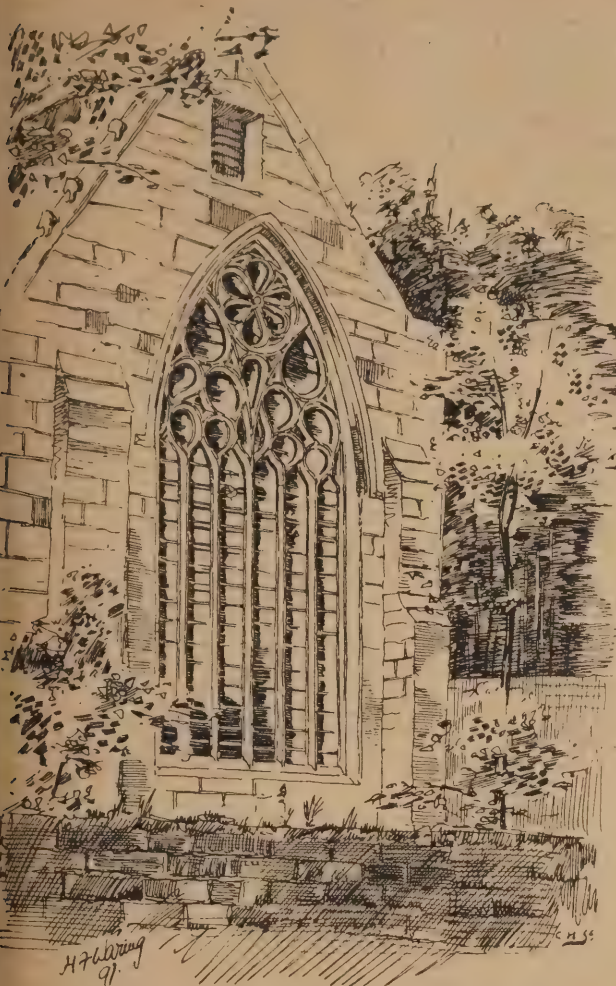


BANK PREMISES AT WIMBLEDON. MESSRS. CHESTON AND PERKIN, ARCHITECTS.



IN THE VILLAGE OF BUSCOT, BERKS. MESSRS. ERNEST GEORGE AND YEATES, ARCHITECTS.

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EAST WINDOW, ST. MARY'S CHURCH, YOUGHAL:
FROM THE COLLEGE GARDEN.

NATIONAL GALLERY.

THE DANGER OF FIRE.

A LETTER emphasizing the risk from fire run by the National Gallery has just appeared in the Times, over the name of Mr. I. H. Spielmann. The writer enumerates the inadequate safeguards in operation, and proceeds:—"The roofs and lantern-lights on the eastern portion of the building were stated not to be fireproof at the last Parliamentary inquiry into the affairs of the National Gallery, and I cannot ascertain that the deficiency has ever been remedied. There is a double roof over Barry's extension, and over Sir John Taylor's a single roof, but there is no iron setting over the skylights such as would afford a simple and effective protection against falling embers from a neighbouring fire. The floors are of wood, and the risks from such embers are obvious. Surely, situated as the National Gallery is in the midst of danger, reproof flooring is desirable. Furthermore there are, if I remember aright, two open fireplaces in the small rooms—exhibition rooms in the very heart of the Gallery.

THE ROOFS ARE COVERED WITH LEAD, and the danger of which in the event of a fire need hardly insist. The iron roof-shutters on the north side of the Turner room, which in absolute contact with the canteen end of the barracks—shutters on which so much reliance is placed—have actually been removed; and no one in the Gallery, so far as I could ascertain when I made this discovery, knew of the trick that had been played them. This matter urgently demands attention. None but those who have personally examined the building, both from below and from the roof, can fully realise the danger with which the Gallery is continuously threatened by the barracks, in which more than one outbreak

has already occurred. It is years since the Duke of Cambridge officially declared that these barracks had no strategic value, and it is now some time since the Government promised their removal. As so long a time is to elapse, may it not be asked that the canteen and married soldiers' quarters should be transferred from the house carefully selected for them against the wall of the National Gallery to another portion of the partially-occupied building? In Hamptons' block on the west, a rookery of dilapidated and highly-inflammable buildings on the north-west, and the contiguous barracks on the north, we have three distinct and separate sources of imminent danger, between them ensuring almost certain catastrophe if the wind should blow from any of these quarters. Portions of the Wellington Barracks and the Chelsea Barracks have already been gutted; probably the turn of St. George's Barracks is not far distant, when the National Gallery will possibly go with them. Yet all the Government has

done—besides promise—was done years ago, when Mr. Shaw Lefevre erected a water-pipe in the Gallery in order to put out the fire which Government would not make improbable, and thus added to the danger from flames and smoke the almost equal risk of damage from water. If a report were obtained from an expert upon this matter I have little doubt that it would prove as sensational as that which has startled the Government into rescuing South Kensington from a condition hardly more serious."

THE Town Council of Lowestoft has applied to the Local Government Board for leave to borrow £1300 for sea defence works, and £2200 for the purchase of the South Beach.

THE Llanelly Borough Council has received the sanction of the Local Government Board for the borrowing of £5000 for the raising of the sea embankment at Machynis. The Council proposed to raise the height by 3ft., but the Board of Trade stipulated for another 3ft., which will now be carried out. The work will be completed under the supervision of the Surveyor.

The Birmingham Competition.

COUNCILLORS AND THE ASSESSOR'S AWARD.

AT a recent meeting of the Birmingham City Council, Alderman Lloyd presented the report (summarised in our last issue) of the Lunatic Asylums Committee, dealing with the competition for the plans of the new asylum to be erected at Hollymoor, and for which Messrs. Martin and Chamberlain were the successful competitors. He stated that before Mr. Hine (the assessor) saw the plans sent in in the competition they were carefully examined by the two medical superintendents of the City Asylums, who also recommended the plans marked "Forward" as being more adapted to the requirements than the others. It was naturally gratifying to the committee that their original recommendation should, after being submitted to the test of competition, have been so unanimously proved to be right, and his only regret was that so much public money and valuable time had been expended on the matter, and that

SO MUCH DISAPPOINTMENT

should have been occasioned to the unsuccessful competitors. He hoped that the long-delayed work would now be allowed to proceed, and he moved that Messrs. Martin and Chamberlain be instructed to prepare the necessary detail plans for submission to the City Council and to the Commissioners in Lunacy.—Mr. Hughes seconded.—Mr. Howard Lane put a long string of questions to Alderman Lloyd, as chairman of the committee, and prefaced his inquiries by



SOUTH DOOR IN ST. MARY'S CHURCH, YOUGHAL.

an expression of opinion that there was not much disappointment among the unsuccessful competitors, because they had not much expectation of success. Each had got his £100, and some at all events did not expect anything more. The questions he put were categorical, and as follows:—(1) Did Mr. Hine, in his first report, select the plans of Messrs. Martin and Chamberlain? (2) Were there any reports of the assessor submitted to the committee which were not contained in their report to the Council? (3) If Mr. Hine advised the adoption of Messrs. Martin and Chamberlain's plans in his first report, why was there any necessity for a subsequent conference with him? (4) What were the names of the competitors who came in second and third in the competition? (5) What steps were taken to ensure that

THE ORIGIN OF THE PLANS

should not be known when delivered by the messengers of the respective architects at the Council House? (6) What guarantee have the committee that the estimate of £220 per bed will not be exceeded by more than 10 per cent. usually allowed as a margin for contingencies? (7) Why one competitor was allowed to submit two sets of plans and the other competing firms confined to one set each?—Mr. S. D. Balden, who moved the resolution which resulted in the competition, expressed himself perfectly satisfied that the committee had honourably fulfilled their agreement, but objected to the suggestion by the chairman that there had been a waste of public money. The committee had, for the expenditure they had incurred, obtained the right to appropriate the plans sent in, and to use any idea they contained, and if they did use some of the ideas and features of the unsuccessful plans, as he had no doubt they would, the citizens would be gainers and not losers by the competition. Moreover, it had probably spurred Messrs. Martin and Chamberlain to put forth their best efforts.—Mr. Murray wished to know if the committee had any idea to provide in connection with the new building separate accommodation for lunatics whose friends could afford and were prepared to pay for their maintenance, considering that there were grave objections to such patients being treated in exactly the same way as the pauper lunatics.—Mr. Hennessey declaimed against the

INFRINGEMENT OF THE RULES OF THE COMPETITION,

as he described it, in favour of Messrs. Martin and Chamberlain, by allowing them to send in two sets of plans.—Mr. Barber said a good word for the plans selected as the best of the lot for the particular kind of work.—The Lord Mayor remarked, in reply to Mr. Lane, that he was responsible for the interview with Mr. Hine, and he had desired it because he wished some further information on one or two points in the report, and that as a matter of fact three of the competitors submitted alternative plans, six competitors sending in nine designs.—Alderman Lloyd said Mr. Hine sent in only one report. The mottoes attached to the plans ranked second and third were known, and anyone who desired could find out who the authors were, but he did not think it desirable their names should be published.—Mr. Lane pressed for publicity in the interests of the architects concerned, but Alderman Lloyd stood firm, and the Lord Mayor supported him by declaring that it was entirely in his province to withhold the names.—As to the precautions taken to secure anonymity, Alderman Lloyd answered, amid laughter, that he was in Egypt at the time and could not tell, but he knew

SPECIAL PRECAUTIONS WERE TAKEN

to prevent Mr. Hine from knowing the names. There could be no guarantee as to the cost per bed, because the plans were not yet settled, and as to the alternative plans every one of the competing firms could have sent in two if they had desired, though the committee discouraged sending in more than one. To Mr. Balden he replied that he did not suggest there had been a waste of public money, but merely his own regret at the expenditure.—The resolution was then approved, and the report of the committee adopted.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

May 18th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

WITH reference to the proposed municipal buildings competition at Godalming, the Town Council has selected twelve names from the forty-seven sent in response to the advertisement issued. The selected twelve, whose names are appended, will be invited to send in drawings in competition: Messrs. Ardrow and Dawson, Westminster; C. Bell, London, E.C.; Colson, Farrow, and Nisbet, Winchester and London; J. Johnson, London, E.C.; Lancaster, Stewart, and Rickards, London, W.C.; H. Moon, Godalming; E. R. Robson, Westminster; J. W. Stevens, London, E.C.; A. H. Tiltman, London, W.C.; A. H. Verstage, Godalming; S. Welman, Godalming; Woodhouse and Willoughby, Manchester. Mr. E. W. Mountford, F.R.I.B.A., has been appointed assessor.

THE President of the Royal Academy having undertaken to prepare cartoons of St. David, St. Andrew, and St. Patrick, as a preliminary to the filling in with mosaic work of the vacant panels in the Central Hall at Westminster, there is at length a prospect of completing the scheme of decoration of which the presentment of St. George, executed some years ago over the entrance to the Lords' corridor, was the initial step. Watercolour sketches in harmony with Sir Edward Poynter's design of St. George have been in existence for a considerable period; that for St. David is the work of the same artist, and those for St. Andrew and St. Patrick are from the brush of the late Mr. Albert Moore. The cartoon elaborating the St. David design is now in so advanced a stage of preparation that Mr. Akers-Douglas hopes to see it reproduced in mosaic in the panel over the entrance to the Commons' corridor during the forthcoming autumn recess; and it is expected that Sir Edward Poynter will have finished his companion enlargements of Mr. Moore's sketches in time for the remaining panels to be filled in before Parliament meets for the Session of 1900.

It is to be hoped that the very bold, and, at the same time, most important, enterprise of the Glasgow Corporation—namely, to spend the sum of £15,000 at least upon sculpture for the front of their new Art Galleries—will not be allowed to fall to the ground; but at present a feeling of timidity seems to have infected the Committee which has it in hand, and the matter is, if not in abeyance, at all events hanging fire for the moment. The details which have been published of the proposal are interesting, and show no niggardly hand. Mr. George Frampton, A.R.A., is to

have for a bronze group £2000, for six spanrels £1800, and a supervision fee of £600. Messrs. Shannon and Young are to have £1600 for eight stone figures, and £850 for three bronze figures; whilst Mr. Lawson is to have £2800 for eight figures. The carving, which is to be placed in the hands of Mr. Aumonier, is to cost no less than £12,000. It is a bold enterprise, but it is one which we hope may be carried out, as it may give encouragement to London to do a little in the same way.

THE Burlington Fine Arts Club, to whose exhibition we have previously referred, may be congratulated on the manner in which they have filled their large room at 17, Savile Row. The seventy-five pictures which have been sent to them by various English owners show how rich the country is in examples of Early Italian Art, and illustrate most adequately, not with absolute completeness, the history of the Milanese School of Painting. Forty of the pictures shown here have never before, it is believed, been publicly exhibited. Mr. Herbert F. Cook, in his introduction to the catalogue, defines the geographical limits of the district with which the exhibition is concerned, and, after remarking on the meagreness of our materials for its Art history, describes the series of invasions by which Lombard Art was influenced. These "invaders" were Giotto, Pisanello, Bramante, and Leonardo da Vinci, whose genius successively dominated the schools of Lombardy. "It is scarcely to be expected," says Mr. Cook, "that a homogeneous art could have sprung from such diverse elements, and the task of disentangling the composite quality of the final expression of the Lombard ideal is thus unusually difficult." Milanese Art, then, was subject to several distinct influences, but most of all to that of Leonardo, who lived in Milan from 1481 to 1499, and again from 1507 to 1516. He altered the current of Art in Milan so completely that few Milanese painters entirely escaped his influence, and some would appear to have become mere imitators of the master. Mr. Cook observes that while hardly ten pictures exist that are indisputably by Leonardo, at least twenty are usually ascribed to him, of which twelve are in this room.

A GREAT deal has been said about the iconoclastic acts of the Puritans, but the churchwardens of the last century and the building contractors and restorers of our own period are responsible for the destruction of many features, both of artistic and historical interest, in our old village churches. There is no doubt that many memorial brasses have disappeared in this way. One of these—interesting to Goosnargh and to Preston—has just been restored to the old church of Goosnargh. It is no less than a memorial brass to William Bushell, the founder of Goosnargh Hospital. Some years ago, when the church was restored, it disappeared, and was eventually rescued by Mr. T. Harrison Myres, architect. Mr. Myres has had the brass cleaned, and has offered it to the vicar and churchwardens of Goosnargh, who have, of course, accepted it, and agreed to put it in the most fitting place in the church.

BERLIN, we are told, in addition to its many other advantages, can now boast the possession of the best-lighted thoroughfare in Europe—the famous Unter den Linden. The Berliner now hardly knows whether he is under the limes or under the limelight. A long time the Globe fears, must elapse before London will be able to put forward anything like the same claim. Up to a certain time at night the streets are fairly well illuminated, owing to the flaring gas-jets of the tradesmen, and the intermittent brilliance of the electric advertisements of the soap and beef-juice mongers. But when business is done for the day, when the shops are closed, and London has to depend for its light upon the exertion of the public authorities, the streets present a dismal spectacle. Humble gas-lights, 100yd apart, or highly-placed arc-lights at still longer

intervals, shed a feeble radiance not much more than sufficient to make darkness visible.

A FEW years ago Mr. William Morris, writing in the Nineteenth Century, called London "the shabbiest, ugliest, and most ridiculous capital in the world;" and, according to a later utterance of another writer, our metropolis is said to be "frankly, simply, and ostentatiously hideous." These are strong words, which it is now difficult to justify when speaking of London as a whole (remarks a writer in the Leisure Hour). Years ago there would have been a far larger measure of truth in the assertion than there is in our day. The "Great Wen," as Cobbett called it, has still many portions—notably some of the roads leading to the suburbs—unrelieved by a line of architectural beauty, and monotonously dull. In too many cases also fine positions and fine buildings have been marred by colossal deformities like the railway sheds at Cannon Street and Charing Cross. Many so-called improvements have failed to improve our streets, and there is an air of vulgarity in some places due to flaunting advertisements that is eminently offensive. Another defect that belongs to recent days is the custom of raising buildings to a height which excludes the sun, a blunder in a chilly climate like ours, though our tallest structures are low as compared with the thirty stories of New York. Then, too, we have smothered many of our fine buildings by erecting shops or warehouses or houses round them, so that architectural work of a high order has often to be hunted for in odd corners. A writer who lately published a scheme of London improvements complains, too, that the metropolis probably contains "the most irregular, inconvenient, and immethodical collection of houses in the world." All these deficiencies or peculiarities may be admitted, and yet, so far from calling London the ugliest of capitals, we believe with Mr. Hare that in Europe at least it is one of the most picturesque, "more so than Paris or Vienna; incomparably more so than St. Petersburg, Berlin, Dresden, Munich, Brussels, or Madrid." Everybody interested in the subject knows that mistakes have been made by too eager reformers which are now irreparable, but when we compare the London Architecture of forty years ago with what is to be seen to-day, we may well be proud of the progress effected. There is surely an infinite beauty in this mighty City for those who have an eye to see it, and sometimes wonderful glory of colour, as well as poetry of mist and shadow. Nathaniel Hawthorne, although an American, was not slow to discover it. London, he said, had been the dream city of his youth, and he had found it better than his dream.

WE remarked in a recent article (says Engineering) that a serious—almost a disastrous—drawback will attend the Paris International Exhibition of 1900. This is the lack of covered spaces, which will be little, if any, more extensive than those of 1889. It is the misfortune, but by no means the fault, of the Administration, which has done all in its power to increase the space available by including a large part of the Champs Elysées and all of the quay space within the Exhibition boundaries. The reluctant cession of the Champs Elysées, or, rather, a part of it, by the Municipality of Paris, was accompanied by severe restrictions, especially relating to the preservation of the trees; so that, after the great show has disappeared, the beautiful gardens of Paris shall be restored not much the worse. This municipal precaution was certainly worthy of all praise, and the Exhibition authorities have made the most of the restricted area at their disposal. That many beautiful pavilions will be built in the Champs Elysées may be assumed, while the river fronts on each side will be crowded, largely with restaurants and recreative shows. The Champs Elysées will be permanently enriched by the beautiful art palaces now being reared to replace the ugly but long-respected Palais de l'Industrie; and Paris itself will be benefited by the new monumental bridge over the Seine. The matter, however, of chief interest between now and 1900 is as to where the vast number of appli-

cants to exhibit can be accommodated. Broadly speaking, the reply is that a considerable proportion will not be able to exhibit, while the remainder must be contented to participate under restricted conditions.

SOME interesting discoveries have been made at Castle Hill, Huddersfield, where workmen in the employ of Messrs. B. Graham and Sons, contractors, Folly Hall, are excavating for the foundations of a Jubilee tower. The site chosen is at the western corner of the hill, at the highest point, 900ft. above sea level. A space 32ft. square has been excavated to a depth varying from 11ft. 3in. on the northern corner to the level at the southern corner, as the contour of the surface is irregular. At a depth of about 5ft. the labourers came upon rough stones, placed close together, diagonally and edgewise, without mortar, very much in the way in which stones are placed at the present time for the foundation of new roads in this district. About 2ft. below was another course of stones similarly placed. These stones, which extended all over the site, and beyond, are not of the character of the stone of which the hill is composed below the surface, but like that of the old worked-out quarry at the top of Almondbury Bank. In places there were evidences of stones having been burnt. Near the northern corner of the site, at a depth of 11ft. 3in., the workmen came upon the top of the ragstone rock of which the hill is formed, and in it discovered the opening of a shaft, 5ft. 6in. square, hewn into the rock. There was no covering to the shaft, but it had evidently been filled up with earth and stones. The shaft was excavated until a depth of 19ft. through the rock, from the face, or over 30ft. from the surface of the ground, had been reached. During the excavations the workmen found a quantity of skulls, jaws, and other bones of animals. The workmen also found blocks of coarse sandstone of a character unlike any stone found in the neighbourhood, but similar to some in the quarries at Linthwaite, and also like stone existing at Ackworth, near Pontefract. Several of these blocks of stone bore the marks of the chisel as plainly as if they had only recently been worked. It is conjectured that the shaft is that of an ancient well; but nothing has been found to indicate at what period it was made. In the deed granting the site the earthworks of Castle Hill are stated to be of Saxon construction. It is also believed that in the reign of King Stephen a castle stood on the hill; and there is a theory, which sprang up when some remains were found during the construction of Somerset Road, that there was a subterranean communication between the ancient castle and the River Colne. To go further back than either of these two periods, it is also believed by many that the hill was a Roman fortified place. No ancient coins, implements, or pottery or other vessels have been found. The discovery of the existence of the shaft will necessitate a change of site for the tower farther from the edge of the hill.

THE Nottingham Guildhall has just been embellished by the addition of a bronze tablet, prepared in commemoration of the town's elevation to the rank of a city. The tablet has been manufactured by Mr. C. H. Mabey, Vauxhall Bridge Road, London, from a design executed by Mr. A. Marshall, of Nottingham. The design is in thorough harmony with the building. The old town arms are prominently displayed, and on either side are representations of two cherubs holding laurels, the interpretation being the crowning of the city with honour, whilst almost in the centre a figure head is embodied, indicative of progress. The tablet, which has taken nearly nine months to complete, weighs about 5cwts.

THE old Westgate at Winchester, a time-honoured and historic structure, is undergoing some internal improvements. The city surveyor (Mr. Gamon) is overhauling the place under the eye of a sub-committee of the Corporation, and already some interesting architectural features have been uncovered, inclusive of the ancient arrow slits in the western wall commanding the approach to the gate. There

are many names of possible prisoners cut on the stonework; one is dated 1655. The ivy is to be controlled rather than be destroyed, and in due course it is hoped that the old gate may emerge a credit to the city.

ALL SAINTS CHURCH, Bryer, in the Scilly Isles, has undergone a complete restoration. The church, situated close to the beach, succeeded in 1821 a diminutive and unique structure, erected about 1741. In 1860 the present edifice was renovated by the late Mr. Augustus Smith, and a tower and porch were added. The east end has now been entirely rebuilt, while the exterior of the building has been carefully pointed. The new east window consists of two lights of an emblematic and decorative character. All the old and rather unsightly windows have been replaced by windows of a more appropriate and architectural style, and filled with stained glass of subdued tints. The walls are stuccoed, and stained a light slate colour, quite in keeping with the general appearance of the internal fittings of the church. The roofing is of red pine. All the seats are of pitch pine. The pulpit, standing on a granite base, is also of pitch pine, and harmonises with the choir stalls and chancel rail. The nave and choir are paved with black and red tiles, to which a neat finish is supplied by a border of red and cream-coloured tiles. The sanctuary is laid with tessellated tiles, the colours buff and red alternating.

THE removal of the old watch-box from No. 19, Fleet Street, now in course of demolition, reminds us that it was the last of its race here in London. Though many offers have been made to purchase the relic, they have all been declined. In this connection we are given to understand that there are still extant in London three erections formerly known as watch-houses. One is in Marylebone Lane, another adjoining Christ Church, Blackfriars Road, and yet another at the east-end of St. Sepulchre's, Holborn. The last was built in 1791.

SANDHOLE HOUSE, in the Tyne valley, which is strikingly conspicuous by its many chimney stacks and gables, is undergoing extensive alterations and repairs. Apart from its many and varied associations, and the quaintness of its Architecture, which appertains largely to the Elizabethan period, its sylvan environments give it a beautiful rusticity, whilst the view from its front, which overlooks an extensive stretch of the Tyne valley lying between Hexham and Corbridge, forms another of its attractive features. It has been unoccupied for the last five or six years, and the work of putting it in order for the new tenant has been entrusted to Mr. E. Darlington, of Hexham, the architects being Messrs. Jos. Potts and Sons, of Sunderland. The theatre or ballroom which comprised one wing of the building has been entirely demolished, as has also the brewhouse or brewery which formed another wing of the building. New fireplaces have been inserted in all the rooms—some forty or fifty in number—all the floors on the ground floor have been relaid, and sundry other alterations and improvements are being carried out. The lawns, terraces, and fancy flower pots, which, by the way, were at one time noted for their unrivalled beauty, are likewise being well attended to, and will soon be giving a good idea of their former splendour.

SOME carved oak work has been recently erected in the chancel of Clonfert Cathedral—to which we referred last week—consisting of clergy and choir stalls and bishop's throne. The clergy stalls are for the canons of the cathedral. In addition, there are seats for the dean and archdeacon. The crispness of the foliage is specially noticeable in the poppy heads and bench ends. The bishop's throne is a handsome piece of work. The emblems of the four Evangelists are carved on panels at the back. The central panel has a carved figure representing St. Brendan, the founder of the cathedral. This figure is from the Breac Moedog, and represents the saint with a flowering sceptre in one hand, and a pastoral

staff, terminating in a cross, in the other. He is standing on a rock, which rises out of the sea, and is supported at his feet by two monster fishes—the whale being associated with a legend of the saint. The emblems of the four Evangelists are taken from Soiscel Molaise. The throne is surmounted by a carved and traceried canopy, on the front of which is placed the coat of arms of the diocese of Clonfert. The whole of this carved oak work was made by Messrs. Sharp and Emery, of 17, Great Brunswick Street, Dublin, in accordance with the designs of Mr. J. F. Fuller, F.S.A., the architect. The restoration of the chancel of the cathedral is almost finished.

It is probable that the remains of another well-known coaching inn will soon be swept away if the old houses almost opposite Aldgate Pump, now up for sale, find a purchaser. The restaurant, with its many-windowed front, and the house next door once formed the front of the Saracen's Head Inn, from which the coaches for Norwich started. An archway in the centre of the building leads to the yard, which was at one time alive with the bustle and activity of coach life. The galleries have, however, disappeared, and the place has been very much modernised; but, in spite of this, the view of the inn is not altogether unpicturesque, and it will be a matter of regret when London has lost another of its quaint hosteleries.

ONE of the most historic taverns in London has been closed, and lies in ruins under the destroying hand of the moderniser—the very old Magpie and Stump in Fetter Lane. Its associations with political and literary movements of the past fill a large chapter. The whole region round about Fleet Street is fast undergoing change—ancient inns and coffee-houses where revolutionists plotted or great thinkers scribbled, are one by one vanishing to give place to the up-to-date hotel of bizarre decoration and garish illumination.

THE most remarkable Art sale held for many years past has just been concluded at Christie's, when the renowned collection of works of Art of the sixteenth, seventeenth, and eighteenth centuries formed by the late Martin Heckscher, of Berlin, was dispersed. The total of the three days' sale of only 324 lots brought the enormous sum of £64,705 10s. In point of quality the collection has never been surpassed, inasmuch as practically every lot was of absolute and undeniable genuineness, and dealers and collectors from all parts of Europe throughout competed with unusual ardour as each article was offered for sale.

THE collection of oil and water-colour paintings with which the picture galleries of the Crystal Palace have this year been refurnished is well up to, and in many ways excels, the standard attained in previous years. In all, nearly 850 pictures are hung, and this large collection is contributed to by many eminent English and foreign artists. Mr. E. Crofts, R.A., Mr. J. MacWhirter, R.A., and Mr. E. M. Wimperis, R.I., acted as judges in awarding the premiums. In the classes open to the works of English artists, the gold medal for an historical or figure subject in oils was awarded to Mr. T. Blake Wirgman for his picture "Elsa and the Wild Swans," an interesting work illustrating a scene from Hans Andersen's Fairy Tales. Silver medals in the same class fell to Mr. Harold Speed for his picture, "Medusa's Head," Mr. G. B. Jacob Hood for his work, "A Nurse at the Children's Hospital," Mr. G. Sherwood Hunter, A.R.A., for his picture of a funeral of a fisherman's child on the Zuyder Zee; and to Mr. C. Vigor for his allegorical picture, "Innocence and Guilt." Bronze medals in this class were awarded to works exhibited by Mr. H. A. Bone, Mr. H. A. Olivier, and Mrs. M. Murray Cookesley. In the class for landscapes, sea pieces, animals, and other subjects, the gold medal fell to Mr. Yeend King, R.I., for his "Sleeping Waters;" and silver medals were awarded to Mr. Louis B. Hurt for "Sunshine and Shower," Mr. J. C. Adams for "The Morning Sun," Miss

Fannie Moodie for "The Tempter," and to Mr. C. H. Poingdestre for an Italian scene. Bronze medals in this class were given to Mr. D. Longsdon, Mr. C. Stuart, and Mr. F. Whitehead. The gold medal for the best water-colour drawing, irrespective of subject, was awarded to Sir Wyke Bayliss, P.R.B.A., for his scene of the interior of Amiens Cathedral. Silver medals in this class were awarded Mr. H. R. Seer, Mr. R. Meyerheim, Mr. F. Walton, and Mr. A. Kinsley; and bronze medals to Mr. J. Muirhead, Mr. E. E. Briggs, and Mr. N. Brown. Several awards were also made in the classes confined to foreign artists.

THE Edinburgh Architectural Society's prize scheme for this year embraces four competitions, all of which are open to the members of the Society generally, without any restrictions as to age. The first contest terminates on June 1st, by which date competitors must send in their work in connection with the hon. President's prize of £10. The design required is of a drinking fountain. In the same section designs for an organ-case must be submitted by September 28th; and for a cottage hospital for a small country town by October 19th. For Mr. J. A. Morris's award of £5 for the best summer's work, drawings must be handed in by October 5th; for the President's prize of £3 3s. for a design of an English seventeenth century facade of a nobleman's country seat, by November 30th; and for the hon. President's prize of £2 2s. for a design of an entrance gate, by December 14th.

THE British Fire Prevention Committee are actively pursuing their efforts in the direction of guarding against conflagrations by the adoption of precautionary measures, such as the publication of pamphlets, the discussion of practical questions at meetings, and by scientific research. The provisional rules and list of members of the Committee have just been issued. The latter is very large and includes the names of many eminent architects, as well as those of influential personages of other professions interested in the work of the Committee, which is good evidence of the popularity of the movement. The latest pamphlet published under the auspices of the Committee is entitled "Cotton Fires and Cotton Bales," and is written by Mr. R. H. Scotter, C.C. It deals specially with the construction of warehouses for the storage of cotton bales. Mr. Edwin O. Sachs writes an editorial note to the book.

MR. YEEND KING has found purchasers for both his big pictures now on view at the Academy. One goes to Liverpool, but "Milk-Time" has been acquired for the nation by the Chantrey Bequest Trustees. Mr. King is a Londoner by birth, where he studied under Bonnet and Cormon. As a landscapist he made his mark at the R.A. in 1879, with "Green and Gold," a work which found an immediate purchaser. There are very few galleries in London in which Mr. King does not exhibit, and for some time he was one of the leading lights at the Society of British Artists. Another work which has been bought by the Chantrey is Mr. Melton Fisher's picture, "In the Realm of Fancy," which hangs in the Second Gallery at Burlington House. Mr. Fisher was a student at the Lambert School of Art at one time, and he studied for a while under Mr. Sparks. From London he went to Paris, and there he worked under M. Bonaffé. On his return to England he entered the Academy Schools and succeeded in winning a travelling scholarship. This took him to Italy, and the charm of the country so got hold of him that he established himself in Venice. For some years Mr. Fisher has enjoyed a wide popularity as a portrait painter, but his work in this direction is mainly carried on during the London season.

At the last meeting of the Portsmouth Archaeological Institute, Mr. Talfourd Ely read a paper on the antiquities of Hayling Island. In 1045 the manor was granted to the church and monks of Winchester; but William the Conqueror gave the greater part of Hayling to

the Abbey of Jumieges. In the reign of Henry III. a priory was built, but on the suppression of alien priories by Henry V. it was bestowed on his new foundation of Carthusians at Shene. Henry VIII. granted the priory to the college of Arundel. Before the building of the priory there was a church in Hayling, but it was swallowed up by the sea in Edwardian days. The older font in South Hayling church may have belonged to this earlier edifice. The latter church dates from the thirteenth century, and contains many curious features. North Hayling Church is perhaps more ancient. Near it is the oldest house in the island. The manor house dates only from 1777, but stands on the site of an older building, to which belonged the moat, the square well, and the manorial dovecote. Close by is the old tithe barn, 140ft. long by 40ft. broad, said to be "capable of holding upwards of 150 loads of sheaf wheat." Its stone basement is said to date from the fourteenth century. In 1293 we hear of the prior holding a "water-mill worth by the year sixty shillings." This was no doubt represented by the tidal-mill, some of the charred timbers of which are still standing. Tournier Bury is an almost circular space surrounded by an earthen rampart and fosse, and is of British origin. In "the Towncil Field," not far from North Hayling Church, are the foundations of a large building, near which much pottery has been found, and also coins ranging from the middle brass of Augustus to a British imitation of a coin of Postumus. During an experimental excavation of this site Mr. Ely discovered, in a trench 21ft. long, over fifty tesserae, which had obviously formed part of a mosaic pavement. This established the Roman origin of the remains. The paper was illustrated by the above-mentioned coins, several sketches, photographs, and specimens of pottery from the site in question.

Most visitors to Antwerp will be familiar with the famous Kums collection of pictures, which, since 1891, has been open to the public in the four large salons of the Hôtel Kums. It must certainly be ranked as one of the most noteworthy private collections in the Netherlands, and its dispersal this week is naturally attracting a good deal of attention. M. Kums, who was a wealthy manufacturer of sail-cloth, was assisted by the advice of the famous artist, Henry Leys, to whose discrimination is no doubt due the high average artistic merit of the collection. With hardly an exception, M. Kums confined himself to the work of artists of wide repute. Of pictures by his own countrymen he acquired a small canvas by Dyckman, three examples of Gallait, one Joseph Stevens, and a portrait of himself by Alfred Stevens. One of the finest sections is the French. Fromentin is here represented by "Le Pays de la Soif," Jules Dupré by "Crépuscule," Corot by "Le Matin," Diaz by three pictures, including "Les Gorges d'Apremont," Th. Rousseau by "Le Pont," Meissonier by "Le Fumeur Blanc," and Millet by "La Porteuse d'Eau." There are also examples of Troyon, Decamps, Delacroix, Courtrier, and Géricault; as well as of Dutch and Flemish masters, including Rembrandt's portrait of himself in Eastern costume, and works by Franz Hals, De Keyser, Van Dyck, Rubens, Terberg, Hobbema, S. and J. Van Ruysdael, Wouverman, A. and J. Van Ostade, and Paul Potter. A portrait of Marguerite Thérèse is attributed to Velasquez; and a picture that is sure to attract buyers is Watteau's "Le Glorieux."

THE picture of next year is already determined. Mr. Orchardson, R.A., is to paint, in one group, four generations of the Royal Family—the Queen, the Prince of Wales, the Duke of York, and Prince Edward of York. The whole group has been composed and blocked in, and much progress has been made with the figures of the Prince of Wales and the Duke of York, who have already visited Mr. Orchardson's studio and given him sittings. The commission comes to the painter from the Royal Agricultural Society, of which the Prince of Wales is president.

THE LIBRARIES OF THE MIDDLE AGES.*

By T. G. JACKSON, R.A.

HAVING pointed out that public libraries were one of the popular movements of the present day, the lecturer, in a preliminary allusion to the libraries of the early Middle Ages, when books were so rare and precious that the greatest care was necessary in their storage, said that the only large collections must have been those in the cloisters of the religious houses or collegiate churches. The earliest went back to the time of St. Benedict, in the sixth century; though there was one at Jerusalem in the third century, and the church at Hippo inherited the books of St. Augustine, in the days when the great Roman libraries were still in existence. It was on the model of the old classical libraries at those of the churches and convents were formed. Of the

TWO KINDS OF PRIVATE LIBRARIES

Among the Romans—the simple and the luxurious, which were both described—the simpler plan was adopted by the churches and convents as more fitly serving their needs, the books, for the most part, being kept in chests locked up in presses. As the collections increased, the books were divided into two classes: one being kept as a reference library, and placed in presses in the cloister, where students could come and consult them, and another consisting of volumes which were lent out to the monks to read. In this connection the lecturer quoted a curious rule made by Archbishop Lanfranc in 1080 for the English Benedictines. As collections increased, accommodation had to be found for them.

AT CHRIST CHURCH, CANTERBURY,

in the fourteenth century, the books, which had increased to 698, were dispersed in cases throughout the convent wherever space could be found. The inconvenience of this to students requiring to refer from volume to volume led to the provision of a room devoted to books, and with conveniences for studying them. Between 1414 and 1443 a library was built over the Prior's Chapel at Canterbury, and another at Durham over the old sacristy; in the Abbeys of Cîteaux and Clairvaux similar provision was made over the scriptorium between 1480 and 1503; at Saint-Victor, at Paris, between 1501 and 1508; and at Saint-Germain-des-Prés, about 1513, over the south transept. Buildings specially to hold their libraries were first erected by the universities and colleges. The oldest structure of the kind in England, perhaps in Europe, is the

OLD LIBRARY OF THE UNIVERSITY OF OXFORD,

which still retains many features of its original form. This structure, rarely seen by visitors, and even unknown to the majority of Oxford men, is a two-storeyed building situate on the north side of the choir of St. Mary's Church, joining the tower at one end, and separated from the body of the church by a narrow courtyard. Having glanced at the way books were kept, used, and lent at Oxford prior to the erection of this building, the lecturer gave a sketch of its foundation by Cobham, Bishop of Worcester, about 1320, and some incidents in its early history, following with a description of the interior, furniture, and general arrangements. Long benches were placed at regular intervals at right angles to the walls on which the volumes lay on their sides. A bench was fixed in front for the reader, and a window came between each pair of desks to light that pew cell. Every volume had a metal clip riveted to the front edge of the board forming one corner, to which was attached a light iron chain of the requisite length, having at the other end a ring. This ring ran upon an iron rod which was carried along the top of the desk, and was secured at the end by a hasp and lock to prevent the ring being drawn off.

The foundation of Bishop Cobham's library was succeeded shortly afterwards by that of

THE LIBRARY OF DURHAM COLLEGE,

Oxford, by Richard de Bury, Bishop of Durham (1335-45), of whom an interesting sketch was given by the lecturer, supplemented by some humorous passages quoted from the bishop's "Philobiblon." The books bequeathed by De Bury to the college were kept for many years in chests under the custody of scholars deputed for the purpose. At the beginning of the fifteenth century a library was built, and regularly furnished with book-cases or settles inclosing pews or studies between them, where the books were chained. When Durham College came to an end at the Dissolution, its old buildings were utilised by its successor, the present Trinity, and the old Library of Durham College still serves as the library of Trinity College. William of Wykeham's New College at Oxford set the fashion for all future collegiate buildings at either University in provision being made for every department, and thenceforward

EVERY COLLEGE HAD ITS LIBRARY

as an essential part of its plan. Though books were few, the rooms devoted to them had to be very large, the chaining of the books to the desks making it possible to have only very few on each desk. Soon, as books increased, shelves were formed behind the desks, tier by tier, until at last in the seventeenth or eighteenth century they reached the ceiling. The appearance of the fittings before that time can be well seen in the old Library of Merton College. Of chained libraries there are at least three extant in England, that belonging to Hereford Cathedral being the most ancient and perfect. Old chains, hasps, and staples belonging to Hereford—specimens of the actual fittings of a mediæval chained library—were exhibited by Mr. Jackson, and the method of fixation explained. All Saints' Church, Hereford, and Wimborne Minster also possessed chained libraries. But the finest in the world is that of

SAN LORENZO, FLORENCE,

the great hall of which was designed by Michel Angelo in 1524, to contain the collection formed by several generations of the Medici. The lecturer then touched on the difficulties of consulting books in the old chained libraries. Shelves for the ever-increasing number of books had been provided, but desk accommodation remained as before. One student occupied on a volume prevented three or four others getting access to the books. This led to the library rooms being enlarged. Reference was made by the lecturer to Duke Humphrey's connection with Oxford, and to his splendid benefaction of over 600 books to its library in the earlier half of the fifteenth century. The new acquisitions made more commodious quarters imperative, and in 1444 the University resolved to build an upper story to

THE NEW DIVINITY SCHOOL,

which, begun in 1426, was being slowly carried towards completion. The change was at length made in 1480, when the University Library was removed from the old solar or upper chamber at St. Mary's to the new solar over the Divinity School. The lecturer then glanced at the subsequent fortunes of the Library, which was despoiled of the most valued of its treasures by the Commissioners of Edward VI., and munificently enriched, altered, and enlarged by its second founder, Sir Thomas Bodley, at the end of the sixteenth century, since whose day the venerable central room has remained practically unaltered, the most attractive spot to the student to be found anywhere. Chains were bought for the Bodleian Library as late as 1751; it was not till 1757 that this method of securing the books was abolished. Other libraries described more or less fully were that of St. John's College, Cambridge;

THE NEW LIBRARY FINISHED BY

SIR CHRISTOPHER WREN

in 1695, which forms the western side of Nevill's Court at Trinity College, Cambridge—a stately building, both within and without, a triumph of Architecture, which would suffice

by itself to establish Wren's reputation as an artist; and the fine building of the Radcliffe Library, completed by James Gibbs in 1747.—Interior and exterior views and details of the various buildings described were shown by the lantern, including a view of a library of the lecturer's own making, in which he had tried to combine the two arrangements of cases against the walls and cases breaking out from them.—Mr. Willis Clarke, opening the discussion, expressed the opinion that modern libraries were direct offshoots of the libraries of the Benedictine period, and pointed out that the monks then could not foresee the number of volumes their votaries would collect, consequently libraries were not formed as part of the original Benedictine plan, and when the number of books became too large they had to be put in another place—for instance, at Durham over the sacristy, generally at the end of the south transept of the church, and at Canterbury over the Prior's Chapel.

THE MONASTIC LIBRARIES

were distinctly prototypes of the lending libraries of modern times. They would find the monks took great care of their manuscripts; in fact, the writings generally ended with some injunction to take care of them, or a curse would be pronounced. The speaker recommended a study of the libraries at Oxford and Cambridge Universities, where, he said, they could find out with tolerable exactness how the monastic book-cases were founded. With reference to the way in which modern book-cases had evolved from the ancient ones, it was the genius of Wren which first introduced them in England. He had discovered that the first library founded by Wren of book-cases against the wall was that at Lincoln, and he was inclined to think he copied it from that of Mazarine at Paris, where they knew he studied a great deal.—Mr. H. W. Brewer observed that he had found from a will made by the celebrated John Carpenter, the founder of the City of London School, that he appeared to have had an extremely good library, and he bequeathed a good number of books to the

LIBRARY FOUNDED BY RICHARD WHITTINGTON

at the Guildhall, and he stipulated that the books should be chained. The reason he gave for them to be chained to the desks was that they should be open to poor scholars of the City of London who cared to consult them. The library seemed to have been a very interesting collection of books, one of which was especially interesting to the Institute, as it dealt with Architecture, and a book on that subject in the fifteenth century must have been a great curiosity. It was by William Clee, who was Master of Works to Henry V. and Henry VI., and he added buildings to the Royal palace at Westminster, and, if he mistook not, built a fine hall at Eltham, and also executed work in connection with the Tower of London. There was a very curious letter in the book, addressed to the Privy Council of Henry VI., in which he stipulated that a sum of £1000 should be set aside for the works he was carrying out at Eltham, and in which he said he "wished this sum to be set on one side for him because for building a kitchen at the Tower of London he had not so much as forty pence."—Mr. H. H. Statham proposed a vote of thanks to the lecturer, remarking that Mr. Jackson had traced the

HISTORY AND DEVELOPMENT OF LIBRARIES

in their practical arrangement.—Professor Baldwin Brown seconded.—Mr. E. W. Hudson said one library had not been mentioned in which they must feel interested, and that was the library founded in Paris by St. Louis, King of France. He believed he got the idea from the East.—Mr. St. John Hope said if only architects and architectural students would keep their eyes open when they visited monastic ruins they would find a number of traces of libraries. For instance, in the cloisters at places like Worcester, Kirkstall, and Furness, and elsewhere, there were places, generally in the east wall, which unquestionably had a bearing upon the keeping of books.—Mr. Jackson briefly replied to the discussion.

*Sum of a Paper read before the Royal Institute of British Architects on Monday night.

ELECTRIC LIGHTING AS APPLIED TO ARCHITECTURE.*

By T. Ekin.

IN addressing the members of the Architectural Association on the subject of "Electric Lighting as Applied to Architecture," an explanation is, I think, due as to why I, an engineer, should venture to speak to you on a subject which professionally you are generally and rightly supposed to know far more about than engineers do. When your President-elect, Mr. George Fellowes Prynne, suggested my reading a paper before you on the above subject, I demurred on the grounds that, so far as the artistic and decorative portion of the subject was concerned, I was rather in the position of one seeking for information than one who was able to impart it; but he was good enough to assure me that the subject was of such importance to architects, and could be examined and discussed from so many points of view, that I assented, on the understanding I might be allowed to treat the matter from an engineering point of view, and in the manner I thought most likely to impart information and provide points for discussion. Now I assume that in this year of grace it is unnecessary for me to take up your time by dwelling upon the manifold and very apparent advantage of electric lighting over every other known form of illuminant, whether it be considered from an

HYGIENIC, ARTISTIC, DECORATIVE,

or even commercial point of view, and it is generally admitted that there are very few individuals—excepting, of course, those interested in gas or oil companies—who will not honestly endorse the above statement. At the commencement of this paper, then, it will be as well to state that I do not propose to touch upon or refer to the subject of electric lighting outside buildings, that is, upon the generating plant or other sources from whence electric energy is brought into the building or group of buildings, but rather to confine my remarks to internal lighting and the manner in which the current should be conveyed to the various points of light. Dealing firstly with the distribution of lights, it is obvious that the lighting of different classes of buildings requires distinctive treatment, because the lighting of a cathedral cannot be compared with that of a railway station, any more than the lighting of a ball-room or drawing-room can be compared with that of bedroom or kitchen. Each room or space which it is intended to light should be considered and examined from at least three different points of view, namely:

- (1) The purpose for which it is to be used.
- (2) The decorations, furniture, and general surroundings, and
- (3) The cost of the proposed lighting.

Which of these three points is the most important is probably a matter of opinion, but it may safely be assumed that the third point, or question of cost, is not the least important, because it may be taken as granted that the skill of the architect or engineer in arranging a system of lighting is in no case more marked or apparent than in getting the maximum lighting effect at minimum cost, this minimum cost including not only the first cost of putting in the work, but the more important one of annual expenditure and renewals. When considering the question of

LIGHTING NEW BUILDINGS

by electricity, the subject can be treated and dealt with with a far freer hand, and, generally speaking, with far greater effect than in the case of houses at present lighted by gas or other form of illuminant, because one is so very apt to take the positions at present held or assigned to gas as those most suitable for electric lamps, quite forgetting the fact that gas is so non-adaptable, and lends itself with such ill grace to artistic effect, that there are only certain positions in

any room in which it can safely be placed. Now I shall assume, as an axiom, that the most perfect form of lighting is that evolved from a hidden system of lamps, in other words, where no portion of the lamps themselves are brought in direct contact with the retina of the eye. It is, however, only right to point out that this form of lighting, like many other nice things in this world, is, generally speaking, the most expensive, because, as a rule, it means the placing of the lamp or lamps under some form of shade, whereby a large portion of the illuminating power is lost, and, therefore, in order to get the same effect or amount of light from hidden lamps as from ordinary unshaded, or only partly shaded lamps, double or even treble the amount of energy has to be used. In public halls, concert rooms, churches, &c., the points of light can, if taken from the ceiling or roof, be raised sufficiently far above the heads of the audience that, unless they wantonly gaze at the lamps, no inconvenience to the eyes need necessarily be felt, but it is different in the case of ordinary rooms, be they drawing-rooms, boudoirs, or dining-rooms; and it is these classes of rooms which, in my opinion, require the most careful thought as to the disposition and arranging of the lamps. In dealing with this matter, it is, perhaps, unnecessary to say that I am dealing solely and wholly with the incandescent electric lamp, and that I do not propose to touch upon the question of

ARC LIGHTING,

because, though this light is pre-eminently suited for streets, railway stations, and other similar places, it is not, and, I believe, never will be, suitable in any way for the internal lighting of buildings. Many of you must, at some time or other, have been struck with what is generally termed the "glare" of the electric light, and may possibly have thought that this was one of the inherent faults of the system. I need hardly say it is nothing of the sort, and the fault lies, not in the system, but in the brain of the stupid person who put it there. No sane man or woman, with any regard to their eyes, wilfully stares at the noonday sun; but I submit it is just as idiotic to put up a clear electric lamp and gaze at it as it is to gaze at the sun. Electricity, like most other things, to be properly appreciated must be suitably adapted to the end in view, which, as before stated, is

A DIFFUSION OF SOFT LIGHT,

without the lamp from which the light emanates being brought in direct contact with the eye. I am fully aware that the cost of complying with this requirement is in many cases too heavy to allow of its being adopted, but I submit there is no reason why every electric lamp should not in some form or other be shaded, even if the shading is simply the putting in of an "obscured" lamp in the place of a clear one. It is evident, or at any rate should be evident, that the lighting of each particular room or space should be separately considered, and that being so, it is impossible to lay down any hard-and-fast rules as to what is necessary in each particular case; and it requires a certain, or I may go even so far as to say a good deal, of practical experience and judgment to know the

PROPER AMOUNT OF LIGHT REQUIRED,

and also the position in which the lamps should be placed. Under these circumstances, therefore, I fear it is quite impossible for me to lay down any rules which would be of the slightest value in enabling you to properly arrange for the lighting of any building in which you are interested. There are, as you are doubtless aware, certain "rule-of-thumb" rules which are given in pocket books and similar literature. I have never found them to be of the slightest value, but, on the other hand, rather misleading. Take, for instance, a drawing-room. What use is it to anyone to know that a 16-candle power lamp will light a certain number of square feet of floor when raised a given height above it? In my opinion none, for the simple reason that it is quite impossible to take into calculation or make due allowance for the surrounding colouring of either walls or furniture. Leaving artistic effect out of the question for the moment, it is evident

nothing is easier than to drop a number of pendants from the ceiling, and if these are kept a certain distance from the floor, you can procure the maximum amount of light with the minimum number of lamps and cost. This mode of lighting is, however, not to be recommended, indeed, it is strongly to be deprecated, and when one sees a room lighted in the above manner it is at once apparent that a Goth Vandal, or other barbarian, has had the arranging of the lights. I think it will be generally conceded that the most pleasant, and at the same time, most artistic method of lighting ordinary living rooms is by means of wall brackets, standard lamps, and table lamps, the lamp in each case being shaded so as not to come in direct contact with the eye. With regard to the other rooms in a house, there is not, as a rule, much difficulty in assigning the right position for the lamps and their numbers, but at the risk of reiteration I would again impress upon you the desirability of considering the lighting of each room, or, at any rate, of each principal room separately, and from the three points of view mentioned at the beginning of this paper. Now the next portion of my paper has to deal with the manner in which the electric current is brought from the place where it enters the building to the lamps themselves, in other words, that portion of the work generally spoken of under the comprehensive term of

"WIRING."

As you are doubtless aware, this word "wiring" includes not only the supplying and laying of the various wires and cables, but also—at least as a general rule—the switch and fuse-boards and subsidiary switches, and occasionally the necessary "cutting away and making good," this latter expression being in many cases incorrect, as you, like myself, have probably found by experience that it could be more accurately described as "hacking and tearing away, and not making good." Many of you have doubtless had before you the tenders of some electric lighting contractors for the lighting or wiring of certain buildings, and perhaps have even gone so far as to draw up a common specification to which these various firms have tendered, and you have doubtless been surprised to find that the highest tender is sometimes half as much, and, in some instances, as much again as the lowest, and furthermore have been puzzled to know what should be done under the circumstances. Of course, if no specification has been issued, the reason of the

DIFFERENCE IN PRICES

is easily explicable, inasmuch as the contractors, having no common basis upon which to draw up their tenders, simply send in an estimate for the work and material they consider necessary, with the result that if the contractor is an honest man, taking proper pride in his work, and with a reputation and good name to lose, his prices must be, and always are, considerably higher than those of an individual whose commercial instincts have, unfortunately, prevailed and got the better of his moral ones. It is far otherwise, however, if the contractors have tendered to a common specification, because if there are great discrepancies in the tender, it is evident either that the individual quoting the lowest figure is willing to forego all profit, or else that the one quoting the highest figure intends to make a fortune. Neither of these hypotheses are probable, or ever likely to occur in practice, and it will generally be found that the real cause of the differences may be found in the loose and unscientific manner in which the specification has been drawn up. For a skilful and perhaps unscrupulous contractor nothing is easier than to drive a coach and four through a loosely and inaccurately drawn up specification, whilst it is evident that

EVEN AN HONEST CONTRACTOR,

being but human, will avail himself of every opportunity in interpreting an ill-drawn clause to his own advantage. Perhaps I may be considered wanting in courtesy in suggesting that you are likely to draw up a faulty specification but I can assure you nothing is further from my thoughts, and my only object in speaking

* A paper read before the Architectural Association on Friday, May 6th. Mr. W. Eckstein's paper on "Interior Lighting" was read at the same meeting.

thus plainly, is to insist upon the absolute necessity of drawing up the specification in the most careful manner and with a full knowledge of all the requirements necessary and incidental to the proper carrying out of the work. My experience has been that many points of vital importance to the work are—probably from want of technical knowledge—entirely omitted from many specifications, and others of no technical importance are treated with a fulness and amplification entirely unnecessary. What is the use of carefully specifying the density of current allowed per square inch of sectional area in the copper conductor, when the loss of pressure, or to use a more technical phrase, the fall in voltage, or electro motive force, is omitted? None whatever, because in the case of a light, or group of lights, placed at some distance away from the source of supply, or point from whence the electric energy is brought into the house, the contractor might possibly be carrying out his work strictly in accordance with the specification, and yet the lamp or lamps would look like "hot hair-pins," owing to the fact that the very essential point of loss of pressure had not been taken into account. Again, what is the use of specifying the most heavily insulated wire and omitting the final test when the work is completed? Instances like these could be given *ad libitum*, but for the purpose of argument this is unnecessary. There are still two points upon which I should like to warn you against, and these are, firstly,

THE LOW-PRICED CONTRACTOR

who looks to make his legitimate (or, as some would say, his illegitimate) profit on fittings; and, secondly, the contractor who offers to put in the work so that it will comply with the ridiculously low requirements—I refer to the test of the insulation resistances—of the fire offices. In London and other towns where there are electric supply companies, this latter danger is to a large extent rectified and guarded against by the fact that all work has to pass the more reasonable standard of the supply company, but it still remains in the cases of country houses, and houses in town where the owner or occupier generates his own electric energy.

Mr. G. H. Fellowes Prynne, proposing a vote of thanks to Mr. Ekin (whose paper was read in his absence by Mr. G. B. Carvill), observed that it was absolutely necessary for electrical engineers to be thoroughly acquainted with their work. He had had considerable experience in electric lighting, but he felt his utter inefficiency and a want of time to get sufficiently educated in the work so as to really undertake it himself. The architectural effect of electric lighting should undoubtedly be worked out by the architect, but the actual work should certainly be carried out by engineers. In this new method of lighting they had an astonishing power, altogether different from gas. Where it was possible to have hidden lights, such as behind arches, and in such ways so as not to bring the light down direct upon the surface, the effect was wonderful. In that room they had an example of the light above their heads, and it was most glaring to the eyes. Though the lamps should not be placed so to always get the

MAXIMUM AMOUNT OF LIGHT,

yet the maximum was often desirable. The lamps in that room he thought were very unsatisfactory. With reference to the suggestion for brackets and table lamps, they looked very nice in the drawing room, but he did not think they were always satisfactory. If, however, in lighting some rooms the lights were hidden in the ceiling, and at given points, they got a very satisfactory result.—Mr. E. Howley Sim seconded.—Mr. Hampden W. Pratt said he would like to see the subject of electric lighting well handled by an architect, to give them ideas and experience as to the best ways of using the light to advantage, and to wire without spoiling Architecture. He favoured the brackets and pendants as adopted in some public buildings with charming effects.—Mr. Carvill briefly replied for Mr. Ekin.

THE FALL OF A HOUSE.

ENQUIRY INTO THE WESTMINSTER CATASTROPHE.

THE coroner's enquiry into the circumstances which led to the death of the seven men killed by the collapse of the south section of the buildings known as Abbey Mansions, Orchard Street, Westminster, was commenced last week by Mr. J. Troutbeck (Westminster Coroner), assisted by Mr. John Slater, architect, as assessor.—Mr. G. I. L. Blenkinsopp, inspector of factories, represented the Home Office, and Mr. H. Ashmead, Her Majesty's Office of Works. Mr. Thomas Blashill, superintending architect of the London County Council, and Mr. Seager Berry, of the solicitors' department of the Council, watched the case on behalf of that body, and other persons interested were legally represented.—The first witness called was Mr. Charles James Chirney Pawley, the architect of the building, who said, after the plans were submitted to the district surveyor, the south block, which included the fallen part, was entirely re-planned. New plans were prepared about twelve months ago, and at that time some of the work had been done. The alteration affected the whole of the interior of the building. The new plans were submitted to the district surveyor. The work was carried on under witness's supervision. He had a free hand in the construction of the building, subject to the provisions of the Building Act. He visited the building at least four days a week. On November 17th, 1897, representatives of Her Majesty's Office of Works came upon the scene, and a day or two later they entered into an agreement to take the building on lease. When the Government took it over he placed the building under the supervision of his assistant, Mr. Simpson. The Government had nothing whatever to do with the construction. Witness visited the building on Wednesday, April 20th, the day before the accident. When on the roof of the south block he noticed several carpenters fixing skylights, and that

THERE WAS CONSIDERABLE JARRING

going on. He further noticed that about three-fourths of the roof had been concreted for about a fortnight, and was quite dry; and that the remaining fourth—the part which collapsed—had been concreted quite recently. He gave Mr. Simpson strict instructions not to have any of the "centres" on the roof struck until he himself gave orders for it to be done. He had at that time in his mind a similar accident that had occurred in the same neighbourhood owing to the "centres" being struck too soon. A pier ran up through the building supporting the girders of the six floors and the roof. That pier weighed 28 tons, and the weight it would have to carry would be about 47 tons. The floors were carried by girders. The plans provided for an iron stanchion, which was not put in. That stanchion would have carried 30 tons, and would have reduced the weight on the pier to 37 tons. On several occasions he gave instructions to Mr. Simpson, his representative, to have the stanchion put in. Mr. Reikard, the contractor, knew that it was to be put in. No date was fixed in the Government contract for completion, but they were endeavouring to complete by midsummer. He visited the building about a quarter of an hour after the accident, and found it was practically gutted. He went on the roof of the north block, and asked Simpson whether he had carried out his instructions with regard to the striking of the "centres." Simpson referred him to the roof contractor, who admitted that Simpson had instructed him not to remove the centering. Witness was satisfied that the removal of the centering was

THE INITIAL CAUSE OF THE ACCIDENT.

The concrete which fell from the roof weighed between fifteen and twenty tons. The total weight involved in the collapse was between 150 and 200 tons. He examined the fallen concrete, and found it saturated with water. He was able to distinguish Banks's fireproof

concrete, which was perfectly dry. The girders, which were of steel, were supplied to the order of Mr. Reikard by Messrs. Drewbear, Perks and Co. He could not tell what bearing the girders had on the pier, but it should have been 9in. Every girder was still in existence.

—The Coroner pointed out that, according to the plans, the ground floor girder should have measured 24ft. 6in., and that one which had been pointed out to the assessor by the foreman was only 22ft. 11in. in length. The difference would, he said, affect the bearings. —The witness said that it was no part of his duty to see that the girders had proper bearings, but if he saw anything wrong he would immediately point it out. Mr. Simpson, his representative, was responsible for the girders being according to specification. A bearing of only 4in. would, he admitted, be improper. He noticed that

MANY OF THE BRICKS HAD BEEN CRUSHED

by the weight above. The pier measured 2ft. 6in. in thickness, and ran up to a height of 80ft. A pier of that thickness should be reduced as it went up. He believed there was a rule that a pier should not be carried up more than twelve times its own thickness, which in this case would have been 80ft.—The Coroner: Then why did you provide for a pier 80ft. high, very nearly three times what you tell us is the recognised rule?—Witness: I was told that Banks's fireproof flooring would have a good deal to do with it.—The Coroner: I asked why you carried it up 80ft. instead of 30ft.?—Witness: Because I thought it would do. I was bearing in mind the fireproof floor which is so well tied. The fact of carrying it up to 80ft. would reduce its carrying powers. The witness added that he was of opinion that a mass of 150 tons falling would carry with it any building. The fact that steel joists were broken was very strong evidence of the very strong pressure that had been upon them.—Mr. George Simpson, architect and surveyor, assistant to the last witness, was next called, and stated that he saw the men putting in

THE CENTERING FOR THE CONCRETE ROOF.

It was supported by quartering secured with bolts, the whole resting on the lacing joints of the roof. He did not give directions as to the concrete to be used. The concreting of the roof was done in one continuous job, and he should say five or six days before the collapse. No clerk of the works was engaged. He did not consider that one was necessary, as he and Mr. Pawley were looking after the building. He knew that the centering had been struck, because it was lying on the adjoining roof.—Mr. William E. Reikard, 124, City Road, builder and contractor, deposed that about two years ago he entered into an agreement with the freeholder for the erection of the mansions, and he instructed Mr. Pawley to prepare plans and specifications. It was his own venture. The sub-contract for the brickwork was placed with a Mr. Thorpe. Witness had no control over that. He had a sub-contractor for the flooring, and had no control over that. The same remark applied to the roof and carpentering. Witness had control over the labourers' work. It was to his interest to see that the work was done as contracted for. He was

TO FINISH THE BUILDING AT PRIME COST.

There was no agreement as to the cost, but he took out the quantities and estimated the cost up to the roof at £20,000. He regarded his freeholder as the person responsible for any damage that might occur to life and property. He believed the concrete was to consist of four parts of coke breeze and one part of best Portland cement. It was to be turned over once in a dry state and twice while wet, but he did not know whether that was done. The way in which the concrete was mixed was very important.—Some startling evidence was given by the next witness, Richard Martin Collins, a stonemason, who was employed on the south section of the building, and who averred that many of the bricks used in the internal walls were received from a job in St. James's-street, where, he understood, they had been rejected. They were very soft. Some fell to pieces by

mere handling, and were thrown into the mortar mill. He could not swear that he saw any of the soft bricks used in the construction of the pier which supported the floor girders. The templates supplied for the pier were not used for the pier at all. That would certainly

AFFECT THE SOLIDITY OF THE BUILDING.

He fully realised the seriousness of that statement. The men used to take the first templates that came to hand. When witness protested against small templates being used instead of large ones, he was jeered at, and told to mind his own business. The principal carriage girder at the top went into a flue at both ends. He believed that a girder went right across the pier, and that only two girders went through each floor. The lacing girders were never bolted up to the carriage girders when they were fixed. The lacing girders rested on the flanges of the carriage girders. —Mr. W. J. W. Beckey, outside manager for the Banks' Fireproof Construction Syndicate Limited, said that that Company put in the fireproof flooring. He saw the men mixing the concrete for the roof, and he thought that the way in which it was being mixed was not right. He could not say positively whether any of the girders were bolted or not, but he noticed nothing to prevent him from putting in the concrete. His duty was only to look to the lacing joints. —James Andrews, a carpenter, who was employed by Mr. Reikard as general foreman of the job, said he remembered alterations being made in the plans. It was decided amongst other things to make the brick pier a little thicker than provided for in the specification. He used his own discretion as to the way in which the templates were put in. Mr. Pawley told him to put in 4in. templates. Except for joinery he

NEVER USED THE SPECIFICATIONS

after the footings, although he was aware they were intended to convey instructions. When the accident happened he found, much to his surprise, that the centering had been struck. —The Coroner: The concrete roof had been up a fortnight; why should you be surprised? —Witness: Well, that was all I could think of. I think concrete roofs are too heavy. —In reply to further questions, the witness said he heard that bricks came from another job, where they had been condemned. There were about 35,000 of them, and either Mr. Reikard or Mr. Simpson told him to do the best he could with them. Many of them were broken and soft; the whole ones were used for the internal walls, and the soft ones were put into the mortar mill. Sand was used with the mortar, but he did not know in what proportion. He had never been on a job of this magnitude before without a clerk of the works being employed. —Mr. Reikard, recalled, said the cost of

THE BRICKS WHICH WERE CONDEMNED

was £2 2s. per 1000 "alongside," which was a good price. They were condemned by Mr. Pawley, the architect, at another job. Mr. Pawley told witness that those bricks were rather soft, and ought not to be used for the bottom part of the building. The best of the bricks might have been used for the inside walls. Witness gave him to understand that most of them would be ground up for mortar. —Mr. John Drew-Bear, engineer, of Queen Victoria Street, said his firm supplied some of the girders for the building. In the plan no provision was made for stanchions. —Mr. Samuel Murrell, engineer, Victoria Street, S.W., said he was the contractor for the cast-iron cornice, and he was asked by Mr. Simpson to connect the roof, which he had already made. After doing that he started the concreting. Witness told his foreman, the deceased man Parker, not to touch the centering, but on going to the building after the calamity he found that the centering had been struck. With regard to the alleged improper mixing of the concrete, that material would speak for itself. Assuming that the building collapsed owing to the removal of the centering the concrete would fall in pieces of 3ft. 6in. wide. He could give no reason for the joists falling. His belief was that the accident was caused by someone hoisting a weight by means of a winch and a snatch fixed

round the pier, so causing the pier to "shoot out." One man could exert seven tons on the pier with the assistance of the snatch block. It was dangerous to strike the centering at the time it was struck. —John Hammond, a labourer, who was at work on the roof at the time of the accident, said he and five other men were instructed by the deceased man Parker to strike the centering. The concrete was very hard, and to test it witness "bounced" a crowbar on it. It sounded like a drum. He was certain that the concrete did not go first. The whole thing collapsed without the slightest warning. He should say the concrete was thoroughly set and fit for striking. He could not say whether there was any hoisting going on at the time. He did not notice any vibration. He saw nothing to account for the collapse. He had known concrete to set well and the centering be fit for striking in eight days. The portion of the concrete which collapsed had been up a much longer time. —The inquiry was adjourned after the third day.

PUBLIC IMPROVEMENTS IN LEEDS.

SEVERAL of the public and private projects now in hand for the improvement and development of the centre of Leeds have just reached an interesting stage. First of all, there is the scheme for the widening of Land's Lane. One large property was lately acquired by the Corporation, and notices have now been served upon the owners of all the scheduled premises on the east side of that thoroughfare, from nearly the top of Upperhead Row to Commercial Street. Between the west side of Land's Lane and Upperhead Row private enterprise is also exceedingly busy. It seems only the other day that a scheme was inaugurated for the demolition of a lot of old and dilapidated property in that neighbourhood, and the erection of a handsome arcade. The premises have been cleared with such rapidity that the builders have been able to take possession of the site, and it is the intention of the architects, Messrs. Ambler and Bowman, to push on the work as quickly as possible, and to complete the arcade before the end of the present year. The whole of the contracts have been let. The arcade, which will be named the "Victoria," will be 224ft. long and 18ft. wide, and the design suggests French treatment of an artistic and pleasing character. There will be an entrance from Land's Lane and Upperhead Row.

THE WIDENING OF LAND'S LANE

has revived to some extent a suggestion to make a good thoroughfare from Albion Place to Briggate, and thence direct on to the new street through the Shambles, already sanctioned by the Local Government Board. This proposal, should it eventually be carried out, would not only relieve the congested traffic in Commercial Street, but would also provide an alternative route to Vicar Lane and Kirkgate Market. The public men who advocate this extension hold strongly to the opinion that it would prove very remunerative to the Corporation in the shape of increased rateable value. Another matter which at the present time is engaging the attention of some of the municipal representatives is the proposal to open out Central Road, lying between Duncan Street and Kirkgate. Not long since the owners of the Bull and Mouth Estate approached the Markets Committee, with the idea of forming a new street from Central Road, which is the property of the Corporation. The negotiations are still pending, but if they should be satisfactorily completed the public will obtain a direct road from Duncan Street to Kirkgate Market. Among other projected enterprises in Central Leeds are alterations in Lady Lane. The march of improvement is also manifesting itself elsewhere in the city. One example of this spirit is seen in East Leeds, where the Corporation are making a short thoroughfare between Brass Street and Copper Street to communicate with Wrigglesworth Street. Although comparatively small, the scheme will be beneficial from a sanitary point of view, besides proving a great convenience to the residents of the district.

LETTERKENNY CATHEDRAL.

AN IMPORTANT LAW CASE.

IN the Queen's Bench Division, Dublin, judgment has been given in the case of Ramsey, Brown, and Co. v. O'Donnell. The plaintiffs, who are timber merchants in Dublin, sued the Most Rev. Dr. O'Donnell, Lord Bishop of Raphoe, to recover £512 10s., price of timber sold for the Letterkenny Cathedral. The question was whether the timber was according to contract. The plaintiffs contended that the timber had been passed in Dublin by the defendant's agent. The defendant denied that it had been passed according to contract by his architect, Mr. William Hague, and that the inspection by Mr. Hague's brother did not satisfy the

TERMS OF THE CONTRACT.

The judge who tried the case, Mr. Justice Gibson, directed a verdict for the defendant, leaving it to the Court to decide whether or not an inspection by an agent was sufficient to satisfy the contract. —After the argument, Mr. Justice Murphy said the question was whether the defendant, the Bishop of Raphoe, was bound to pay the plaintiff £388 for timber alleged to be sold and delivered to him under a contract of April, 1897. The contract was to be found in a letter of the plaintiff to Mr. Hague, dated April 23th, 1897. The defendant desired to have for the roofing of the cathedral at Letterkenny the best Memel timber, and in order to obtain this he wished that an architect, Mr. William Hague, should, for his protection, arrange the price to be paid, and also that the timber, before he was to pay for it, should pass the inspection of Mr. Hague, and be of the very best quality. The plaintiff agreed to

SUPPLY SELECTED MEMEL TIMBER

of such quality as to pass inspection when ready at 2s. 2d. per cubic foot, free on rail of the vessel in Dublin. His Lordship, having referred to the correspondence in the case, said it was admitted that the timber sent down to Letterkenny was never inspected by William Hague, and it was also clear that William Hague, after the timber arrived at Letterkenny, refused to have any inspection. On September 8th Mr. Robert Hague, said to be a brother of William Hague, wrote to the plaintiff in his own name, and from this letter and another of September 18th there appeared to have been a tolerably close friendship between R. Hague and the plaintiff. Now, whatever benefit that friendship might have conferred mutually on the parties to it, it certainly did not appear to have resulted in any benefit to the defendant, because it appeared that the plaintiff was quite willing to place the timber on board, when inspected by R. Hague, without any authority from the defendant and W. Hague. He (Judge Murphy) was of opinion that the defendant was unfairly dealt with in the present case, whether by collusion between the plaintiff and R. Hague or by blunder he did not know. In his opinion it was part of the terms of the contract imposed on the plaintiff to supply goods that William Hague pronounced to be

FIT FOR THE PURPOSE

for which they were ordered. The plaintiff and Robert Hague, in their mutual respect one with the other, appeared to him to have deliberately made arrangements disregarding the terms of the contract introduced into it for the protection of the defendant, and if the plaintiff now succeeded in this action he would obtain such cess through the violation of his contract. And the defendant, though he would not be able to have the pleasure of feeling that the loss was occasioned by his own error, must console himself by knowing that his loss was imposed on him according to law. In his opinion the verdict that had been entered by Mr. Justice Gibson for the defendant should stand. —Mr. Justice Johnson and the Lord Chief Baron delivered judgment for the plaintiff, and the verdict was entered for him accordingly.

ARCHITECTURAL PUPILAGE.

BY JAMES HINE.

ADDRESSING the members of the Devon and Exeter Architectural Society, on his retirement from the presidential chair at the annual meeting, Mr. James Hine, Plymouth, said the Institute of British Architects had always recognised that there was no more valuable part of a student's training than the study of good examples of ancient buildings, and the sketching, and more particularly the making, of exact measured drawings of such buildings. The idea of some might be that this tended to make a man a plagiarist, but experience showed this kind of work gave him a mastery of his Art, and a degree of freedom in designing which he would not otherwise possess. In this respect what was good for the painter was good for the architect, and their distinguished Devonshire painter, Sir Joshua Reynolds, said to the Royal Academy students 130 years ago, that he whose mind had been disciplined by long converse with the great masters, and who was best acquainted with the composition of others, would be the most capable of

NEW COMBINATIONS AND ORIGINALITY.

The period of pupilage was obviously the time and opportunity for cultivating the artistic side of an architect's work, because in the actual carrying out of an architect's business he had often to face very practical duties, and the exclusion altogether of esthetic considerations. Loyal, however, to his profession of noble Art, his principal aim would ever be to represent it adequately. It was much to the honour of Mr. Crocker that at the commencement of his professional career he distinguished himself by securing an institute silver medal for his admirable set of drawings and details of Exeter Guildhall, and to their honorary secretary, Mr. Harbottle Reed, who was quite recently awarded the Grissell Gold Medal for his clever design for a wooden church. There was no work so open to criticism—not even parsons' sermons—as the work of architects, public and private, free and open, candid and pitiful, it lasted for all time, or as long as a building stood; and happy was the architect who was not very thin-skinned. No doubt when the Jacobean masons were piling on the gony of freestone and ornament over each sturdy (and now long-suffering) column of Exeter Guildhall facade, there were loud murmurs and solemn head-shakings from venerable critics who had sworn fealty to

THE PERPENDICULAR MODE OF CONSTRUCTION. Well, that delightful old building, although it had long passed to its second century, was still open to criticism! As an example, there were many things about it one would be desirous of avoiding and nervous in imitating; yet so quaint and interesting was it in outline, and so refined in its details, that every sympathetic observer loved it. Should it ever unfortunately be taken down, it was satisfactory to know that it would exist in Mr. Crocker's drawings. Altogether apart from ecclesiastical buildings, which give pre-eminent dignity to cathedral cities, there were two beautiful and picturesque towns in the West of England—Exeter, which was largely the creation of the sixteenth and seventeenth centuries, and which had still the impress of those centuries in its principal street; and Bath, which retained the beauty given it by Wood in the last century. Why was it that in the more modern towns, fashionable and fashionable, which had sprung up during the recent century, the impress of Architecture was so imperfect and unsatisfactory? Because, for the most part, they had not been the creation or work of architects. This had been

A MISFORTUNE FOR THE PROFESSION, but it had been a greater misfortune for the towns, and had been the occasion of numberless blots on the face of Nature. Occasionally; had no doubt been possible to carry out in such new towns a well-considered and effective design; but one swallow did not make a summer, and one good building did not usually make a beautiful street.

Professional Items.

ABERDEEN.—Additions are to be made to the King Street Public School. The plans prepared by Mr. J. A. Ogg Allan, and which have been sanctioned, show a new gymnasium at the eastern extremity of the school ground. It is a granite building, two stories high, fully 70ft. long by fully 30ft. wide. The building is comparatively plain in design, but relieved by various dressed bands and other simple features. From the entrance vestibule at each end entrance is obtained to the gymnasium, which occupies the whole of the ground floor—a large room, 68ft. long by 28ft. wide, and 14ft. high. On the first floor, entering by the boys' staircase, is the manual instruction room—36ft. by 28ft. It will accommodate thirty boys. On the same floor, entered by the girls' staircase, is the cookery room, 31ft. 6in. by 28ft. The total cost of the new building is estimated at £1600, or, including furnishings, £1845. Extensive alterations are to be made to the main buildings.

The plans are now completed of the school which the Aberdeen School Board is about to erect at Old Aberdeen. The building is so planned that, should necessity arise, it can be doubled in size by taking down the east wall and reduplicating the building on the east side, making it a two-class school with accommodation for 1100, instead of—as provided by the plans to be carried into effect at present—a one-class school with accommodation for 550. It will be a granite structure two stories high. The west elevation, facing Dunbar Street, shows two gable-forms projecting forward on each side of a square-topped central block. The surmounting pediment is the chief architectural feature of each of the gable-forms. The central block is treated in a series of massive pilasters, which support the entablature above the large three-light window on each floor. The north and south elevations—which are of similar design—are pierced with four-light windows on each floor, marked by tall pilasters and entablature as in the western end. The school will be built of "rustic" Rubislaw granite, all the pilasters, mouldings, and other dressed features being in close-picked Kemnay stone. The architect is Mr. J. A. Ogg Allan, the Board's Master of Works. The total cost of the work is estimated at about £5500.

ARKLEY.—The enlargement of St. Peter's Church, Arkley, is completed. The addition to the edifice consists of a chancel, south vestry, and organ space, so erected as to facilitate future extensions by means of an aisle on the north side, and a further development westward. The Architecture of the new chancel is Early English, with groined oak roof, and six clerestory windows after a well-known Northamptonshire example. The floor is of stone, with marble in the sacrum. The measurements of the chancel are: 31ft. by 17ft., and 27ft. to the ridge of the groining. The outward facings of the chancel are snapped flints, set off effectively with dressings of very fine Stamford stone. By the enlargement, space is afforded for 100 additional sittings. Mr. J. C. Traylen prepared the plans, and the contract was undertaken by Mr. W. Wade, of St. Neots.

BARRY DOCK.—The recently-opened chapel at Barry Dock is one of the largest in the town, and, together with a commodious residence for the pastor adjoining, has been erected at a cost of £2500. It has seating capacity for 750. The architect was Mr. Jenkin Williams, Cardiff, and the builder Mr. Jonathan Lewis, Cadoxton.

BIRMINGHAM.—A Baptist chapel has been erected at King's Heath. The total cost, together with the schools completed previously, was £7000. The new church is 72ft. long by 43ft. wide, has transepts and a large chancel, and will accommodate about 500 persons. The building is of Ecclesiastical character, and the materials used are Leicestershire bricks, with Hollington stone for the dressings and the

mullions of the windows. Internally the church has a lofty appearance, having an open timber roof of pitch pine, springing from stone moulded corbels, constructed with bold arched ribs, which give an air of spaciousness and lightness to the interior. The chapel is heated by hot water pipes in the most approved manner, and is ventilated on the automatic principle of "Tobin" flues in the walls, and exhaust roof ventilators. It is well lighted on all sides. At the rear is the school, erected some time ago. The work has been carried out by Messrs. James Moffat and Sons, of South Road, Camp Hill, from the designs and under the superintendence of the architect, Mr. A. Harrison, of Queen Chambers, Colmore Row.

The one-time Presbyterian Church in New John Street West has been transformed into the Established Church of St. Edward. Mr. H. T. Buckland has been entrusted with the task of converting the building architecturally. His task has been a difficult one, for the architect of the chapel seems to have had no scruple about the mixing of styles, as the Early English clerestory, the Corinthian pillars, the timbered roof, and the double arcade of Romanesque pillars prove. But the strangest feature of the building is the apsidal recess in what is now the chancel. Here it was once intended that the minister should have his pulpit; now it is a veritable apse, the semicircular vaulting being covered with conventional ornament on a gold ground, a painting of the Crucifixion overlooking the plain oak altar. To separate the chancel from the body of the church, the three pillars nearest the altar have been cased and brought more into harmony with the general architectural tone of the building. To the Gospel side of the altar is the organ case, with its delicate perforated screen facing the congregation. The wall on either side of the altar is panelled in the lower part, the upper two-thirds being stencilled with a rich diaper, in which appear in manifold repetitions the Alpha and Omega and the I. H. S., so familiar in Christian iconography. Choir stalls, a pulpit, and reading desk have been erected. At the west end of the church there is a gallery, and perhaps the one point in which the building is unorthodox is that it lacks a centre aisle.

BOLTON.—Memorial stones have been laid of the Victoria Wesleyan Hall, Bolton. The cost of the building, including the purchase of the shops in Knowsley Street, is estimated at between £20,000 and £30,000. One of the shops will be converted into an entrance hall, and a tower will be built over this to the height of 90ft. A spacious vestibule is to be provided, having an inquiry office, and to right and left broad staircases to the gallery of the hall. Beyond these, through a double archway, are the staircases to the lower floor. Past these staircases are the doorways to the main floor of the Victoria Hall, on the level of Knowsley Street. The centre part of the floor is sloped from front to back, and at the sides the seats are arranged tier above tier, so that everyone can have an uninterrupted view of the platform. The roof will be arched and panelled, with coved sides over part of the gallery. Messrs. Bradshaw and Gass, of Bolton, are the architects.

CARDIFF.—A new chapel has been erected in Machen Place, Riverside. The building is designed in the Gothic style of Architecture, and has been erected by Messrs. Cox and Bardo, contractors, of Elm Street, Roath, from designs prepared by Messrs. Habershon and Fawckner, architects. It has a total accommodation for about 700 (including the galleries, which are placed round three sides of the building). The chapel has a light and lofty appearance, and the glazing throughout is of cathedral tinted glass, the window in the principal front being a large one, with tracery. The rostrum and communion rail are placed at the far end of the building, the former having open panels fitted in with iron work. The gallery front is also of ornamental iron work, and was supplied by Messrs. J. Williams and Son, of Queen Street, who also fitted up the warming apparatus. The aisles are laid

with wood-block flooring, and the chapel is lighted by "sun burners" in the ceiling, supplied by Messrs. W. A. Baker and Co., of Newport. The entire cost of the building exceeds £4000.

CARLTON (Nottingham).—The United Methodist Free Church has erected a new chapel and schools at Carlton. Messrs. R. C. and E. R. Sutton, of Nottingham, are the architects, and Mr. John Lewin is the builder. The premises are of a comprehensive character, the Architecture being of the late Gothic style, somewhat freely treated. The facings are composed of red sand bricks, with stone dressings, and a noticeable feature is the large tracery window in Main Street.

DERBY.—The newly-consecrated church of St. Augustine is a substantial red-brick building, with seating accommodation for 420, and is designed in the architectural style of the Early Decorative period. It was originally arranged that the church should consist of a nave and two aisles. Up to the present, however, all that has been done is the erection of the nave and north aisle. The other aisle and the completion of the church according to the plans adopted will be carried out as circumstances permit. Messrs. Naylor and Sale are the architects, and Mr. Tomlinson, of Norman-ton Road, the builder.

DODBROOKE.—A new screen has been erected, and the organ reopened, after extensive additions, in the Church of St. Thomas of Canterbury. The new carved oak screen is across the north aisle, and completes the series of front screens dividing the nave and aisles from chancel and chapels. The new organ case and front is in vainscot oak, with three towers of metal pipes, the central tower containing some of the large 16ft. double diapasons.

DUBLIN.—The new shrine of the Virgin Mother of Good Counsel has been opened in the Church of St. Augustine, Thomas Street. The chapel which is devoted to the shrine is situated on the east side, and opening off the chancel, with moulded arches and marble columns, and consists of two bays, 28ft. by 15ft. by 25ft. high, richly grained, and lighted with tracery windows, which are filled with stained glass, the side windows having representations of the Assumption and the Maternity. The walls of the chapel are built in Bath stone, enriched with moulded wall columns; the jambs of the windows and wall surfaces are carved in low relief, with foliage, having shields introduced at intervals, with emblems from the Litany in gold on a blue ground. The decoration of the moulded wall columns between the bands is in the French style, and on the lines of Sainte Chapelle in Paris. Mr. John Early, of Camden Street, carried out the decoration. The wall surfaces under the side windows to the height of 11ft. are inlaid in mosaic, with ornamentation appropriate to the mosaic groups in the centre panel of each bay, representing the Nativity and Holy Family respectively. The altar is of white Carrara marble, with inlays of Venetian mosaic, columns and inlays of Mexican agate, onyx, rouge, jasper, and Sienna marbles. The design is in the decorated Gothic, to correspond with the church. The reredos is divided into three bays, deeply recessed with Sienna marble columns and caps. This work, as well as the frame enclosing the picture of the Mother of Good Counsel, is executed by Messrs. M'Gloughlin and Sons, Great Brunswick Street. The total cost of the work, including the stained glass windows, is over £2400, and all has been carried out from the design and under the supervision of Mr. G. C. Ashlin, architect.

EXETER.—The Devon and Exeter Turkish Bath Company Limited has just opened new baths at Exeter. The buildings have been specially designed and erected for the baths. The electric light is used throughout. The baths comprise three hot chambers, shampooing rooms, with the latest improvements

in shower, douche, needle, etc., baths, served with hot and cold water; also a plunge bath, and a capacious cooling-room, etc. The heat in the bath rooms is maintained by a convoluted stove, and the ventilation is on the most approved principle. The air, after being filtered and purified, is heated outside the bath rooms, and a continual current forced into them, thus preventing stagnation or stratification. The whole of the work has been carried out by Exeter firms.

GRANGETOWN.—The foundation-stone of new public baths at Grangetown has been laid. The new buildings will consist of a swimming bath and slipper baths, with the bathman's and caretaker's house above, and a public washhouse and laundry. The contract for the whole of the work has been let to Messrs. Bastiman Bros., of Middlesbrough, for £1736. The architect is Mr. Mitchell Bottomley, of Middlesbrough and Leeds.

HUNCOTE (Leicester).—A new parish church is being erected for Huncote, to be called St. James's. The old chapel of St. James' many years ago fell into decay, and, "becoming ruined," the land on which it stood was merged into the estate of the adjoining landowner, and lost. The edifice has been designed by Mr. Francis Bacon, of Newbury, Berks, at an estimated cost of £2500, but only the chancel and part of the nave is now being proceeded with. The new church will be built with Huncote granite, relieved with white stone dressings, and when completed in accordance with the original designs will be a handsome little edifice, with tower and spire at the west-end. The builder is Mr. Thomas Herbert, of Leicester.

INVERURIE.—Contracts for the locomotive and other workshops to be erected by the Great North of Scotland Railway Company at Inverurie have been accepted as follows:—Mason work, Messrs. Pringle and Slessor, Aberdeen; carpenter, Mr. Buchan, Monymusk; slater, Mr. G. Davidson, jun., Thistle Street, Aberdeen; plumber, Messrs. Blaikie and Son, Aberdeen; painter, Messrs. James Garvie and Sons, Aberdeen; and steel and iron, Messrs. A. Findlay and Company, Motherwell. The contracts include the erection of a carriage and waggon shop, paint shop, smithy, and foundries, boiler-fitting and erecting shops, while on the same area, these blocks are each separated from the other by a wide open space, so as to provide against the spread of fire. The contracts just concluded form the first section of the work, and will occupy fifteen months in completion. The cost of the operations now sanctioned is understood to be about £40,000.

KENDAL.—New Roman Catholic Schools are in course of erection here to accommodate about 450 scholars. The new buildings are expected to cost £4000. They are designed by Mr. John Stalker, Kendal, in the domestic Gothic style of Architecture, and are to be built with the local stone, with Prudham free-stone dressings. The roof will be covered with Buttermere slates. The building will contain on the ground floor a mixed schoolroom, infants' schoolroom, three class-rooms, and book stores. All the rooms in the schools are being lined for a height of 4ft. with glazed bricks. The following are the contractors entrusted with the various works:—Mr. James W. Howie, mason and slater; Messrs. Nelson Brothers, carpentry and joiners' work; Mr. Lawrence Airey, plumber; Mr. William Jackson, painter and glazier; Mr. Benjamin Davis, plasterer; Mr. John Kennedy, smith, all of Kendal; Messrs. John Gill and Co., ventilating engineers, Lancaster; Messrs. Dilworth and Carr, heating engineers, Preston.

LEAMINGTON.—The foundation stone of the new wing of the Warneford Hospital, Leamington, has been laid. The new wing is part of the original design for the extension of the hospital. Messrs. Young and Hall, London, are the architects, and the wing will be built on the pavilion principle. The cost of

the contract is £6760. The new wing will accommodate thirty-two additional patients.

LEEDS.—The Leeds Workpeople's Convalescent Home at Horsforth has just been opened. The building formerly consisted of two semi-detached villas—that has been transformed into one building. It is built of stone, and its foundation is hard sandstone rock. The principal entrance is on the south side, and a commodious porch gives access to a wide entrance-hall running the full width of the house. The architect of the scheme was Mr. Walter A. Hobson; the builder, Mr. C. Winterburn; joiner, Mr. John Ingleson; plumbers, Messrs. J. E. Bedford and Son; slaters, Messrs. Wm. Atkinson and Sons; painters, Messrs. Royland and Horsman; plasterers, Messrs. Luman and Blackburn.

The Oxford Place Wesleyan Chapel, an historical edifice originally built to accommodate 2500 persons, has been undergoing extensive alterations. The chapel front is nearing completion, and the internal alterations (re-seating, new exits, electric light, &c.) will be completed by the end of September. The total cost will be about £20,000.

LEICESTER.—The newly-consecrated church of St. Michael and All Angels, Knighton Fields, has been erected at a cost of about £4500. The design is of a simple character, the materials used being principally red bricks, relieved with stone dressings. The roof is covered with old stone slates obtained from houses pulled down along the line of route of the Great Central Railway. The work has been carried out to the plans of Mr. S. B. Pick (Everard and Pick), by Mr. H. Bland.

LONDON, E.C.—New premises have recently been opened at 51 and 52, Aldermanbury. The structure was erected from designs prepared by Mr. Herbert Knight, architect, of 75, Aldermanbury. The building is in the Italian style, and constructed of stone and red brick, an interesting feature being the two striking gables to the roof. The building comprises ground and lower ground floors, with four other floors over, access to which is gained by a hydraulic lift. Electric light has been installed together with the latest sanitary arrangements. The various floors are supported on rolled steel joists and iron columns, and are specially calculated to bear heavy weights. The builders were Messrs. Pater and Co., of Portland House, Basinghall Street.

LONDON, W.—The Passmore Edwards Acton Cottage Hospital, just opened at Acton, contains two large and two small wards, an entrance hall, operating-room, kitchens, and nurses' and matron's quarters. It is Georgian in style of Architecture, of red brick and Bath stone. The cost is about £3000, and the architect is Mr. Charles Bell, of 3, Salter's Hall Court, E.C.

PERTH.—The Perth Water Commissioners have approved the plans of new buildings at the Water House. The addition consists of a new engine-house. The floor is 18ft. under the ground line, and the building rises above the ground to the height of the building to the north of the centre dome. The new portion is designed to harmonise with the present erection, and is to be built of stone. The front, or elevation, towards Tay Street will complete the original designer's ideas—the dome in the centre and the square buildings on each side. The elevation towards Marshall Place is carried out in the same manner as the elevation towards Tay Street. The plans have been prepared by Messrs. James Smart and Son, architects, New Scott Street, Perth.

PLYMOUTH.—A church and schools have been erected for the Methodist Free Church. The site was a rather awkward one, but the architect, Mr. H. J. Snell, has utilised nearly the whole of the available land, and the building, which is of the Romanesque style of Architecture, is one of the most imposing in that part of the town. The contractors were Messrs. C. H. Tozer and Son. The chapel,

which is of limestone, with Bath stone dressings, has two entrances. The cost of the buildings was nearly £5000.

ST. HELEN'S.—Large additions have been made to the St. Helen's Borough Sanatorium at Peasley Cross. The total cost of the extensions has been £6389. The new buildings, which have been erected by Messrs. Whittaker and Woods, of St. Helen's, comprise a large pavilion, an observation block of two wards, and a large increase in the administrative block.

TECONNAUGHT (County Down).—A new Roman Catholic Church has been erected at Teconnaught, in the parish of Kilmore. The style is Gothic of a late period, and the dimensions give a nave of 80ft. by 32ft. The east end is spanned by a chancel arch, and beyond this the sanctuary projects to a depth of 16ft., communicating with a sacristy 15ft. by 13ft. In addition to the choir space the gallery will provide seats for at least 100 people. The interior work is of the best quality of pitch-pine. The fine grey stone, procured from a neighbouring quarry, is relieved by tasteful dressing. Mr. J. J. McDonnell is architect, and Messrs. Fitzgerald Bros., Limited, Belfast, are the contractors.

TORQUAY.—A new Masonic Temple is being erected here, the corner stone having recently been laid. The building will be Gothic in style, and mainly of red sandstone with bath stone dressings. Messrs. Bridgman are the architects, and Mr. S. Hawkins the builder.

TUNBRIDGE WELLS.—The Forest Brick Works, Tunbridge Wells, just opened, inaugurates an undertaking which will have an important influence on the future extension of the borough. In all about twenty acres of ground have been utilised. The building made is of course the staple industry of Tunbridge Wells. Of late years the trade has been handicapped to an extent only known to those who are actively interested in it. Bricks, which are responsible for a third of the cost of building, have been wanting—wanting in the sense that their price and the difficulty of obtaining them without long delay has practically prohibited the building of houses. It is to the enterprise of Mr. W. Barnsley Hughes, architect, that the new brick works have sprung into existence. The construction of the premises was begun in August last, and it may be here noted that the bricks used were made from the clay at the works, of which there is practically an unlimited quantity. The undertaking has been planned under the expert advice of Mr. E. P. Lee, of the Cardiff brick works.

A new hotel is to be built at Nethy Bridge, designed by Mr. Gilbert, Grantown.

At Swansea a Local Government Board inquiry was held to consider the application of the Corporation for an additional loan of £100,000 for the Cray water scheme.

The Dewsbury and District Joint Infectious Hospital Board has applied for sanction to borrow £22,000 for the provision of an infectious hospital at Chickenley Wood, Soothill, Leicestershire.

A new iron church, to be known as All Saints, has been erected at the Blowick end of 11 Saints parish, Southport. The church will have accommodation for about 500 persons.

ROSSINGTON CHURCH, Yorkshire, has been restored. A gallery has been removed from the west end and an organ chamber erected at the site of the old vestry. Oak choir stalls have been substituted for the old square pews, and the font has been removed under the tower.

The London and South-Western Railway Company is seeking powers to construct a light railway across Salisbury Plain, commencing at point on the main line between Porton and Tisbury, and proceeding by way of Amesbury and Shrewton. It is stated that the line will be about 10½ miles long, and will cost about £60,000 in construction.

Under Discussion.

STAINED GLASS.

At the usual monthly meeting of the Glasgow Architectural Association, held in the rooms, 187, Pitt Street, recently—the president (Mr. W. T. Connor) in the chair—Mr. Oscar Paterson, Glasgow Art Workers' Guild, and lecturer on Technology of Glass, City and Guilds of London Institute, &c., read a paper entitled "About Stained Glass." Treating of the Art side of the question, he summed up the salient points thus:—"Circumstance of material governed the Art of stained glass in its first stages of development. As 'Art' progressed with a greater force than 'industry,' stained glass was more or less trammelled by difficulties of material; but when a certain progress and facility was attained, each craftsman followed out his Art on the lines of his taste, temperament, or circumstance. Every stage of industrial progress is indicated in the development of stained glass, the most marvellous being in the present century." The practical side in design he explained on excellent slides illustrating old and modern work.

THE LIFE AND WORK OF WILLIAM MORRIS.

A lecture on the life and work of William Morris was given by Mr. F. S. Ellis before the Society of Arts on Tuesday afternoon, the 10th inst., Dr. Richard Garnett presiding. A number of tapestries and printed textiles were exhibited, illustrating Morris's decorative designs, as well as some transcriptions in his own handwriting, kindly lent by Lady Burne-Jones. The lecturer spoke from thirty years' personal friendship with his subject, and described his brief apprenticeship to Architecture and the social convictions which led to its abandonment. Yet the house built for him by his friend Philip Webb was the very first artistic dwelling of the new school as we know it to-day. His acquisition of Kelmscott Manor was one of the happiest strokes of fortune for his Art as well as his life. Renouncing the architectural career he began under Mr. Street, he also renounced painting, "because he could not make his figures move." Yet the tapestry of the "Four Seasons," lent by the South Kensington Museum, showed that he could draw the human figure admirably well. His great work, however, was to awaken the public to a sense of the hideousness of Victorian houses and furniture, and to help them by his lectures, writings, and designs, to beautify at least the interiors of their dwellings, and thereby give a stimulus to a better style of domestic Architecture in the generation to come.

WEST OF ENGLAND MASTER BUILDERS' FEDERATION.

The first annual meeting of the West of England and South Wales Federation of Building Trade Employers was held at Bath. The Chairman (Mr. A. W. Lethbridge), in proposing adoption of the report, said, as regarded the Employers' Liability Act, the Federation had approached their local society of architects, so that in future a clause should be inserted in the bill of quantities the same as a fire insurance clause, ensuring the same should be paid by the employer instead of by the contractor. The same line had now been taken by the other Federation, and a satisfactory result was expected. He was pleased to say that, at a special Council meeting by the National Association, held at Derby, a resolution was passed that the different counties in Great Britain should be divided into four county federations. The Workmen's Compensation Act was a very large question, and he was glad to be able to tell them something which had not come to their notice before. Up till the present they could not get at what percentage they would have to pay after July 1. Some thought it would be 30, others 40, and some 50 per cent. £100 wages, but the Builders' Accident Insurance had given them a fixed sum, viz., 15s. per £100 to fully insure against all these Acts.—The report was

adopted, and so was the balance sheet. The balance in hand was £17 14s. 5d.—Mr. Symonds, of Cardiff, was elected president, and Mr. E. W. Wooster, of Bath, vice-president.

"LEAD: ITS MANUFACTURE AND USES."

The monthly meeting of the Belfast Mechanical and Engineering Association was held in the Museum; Mr. Thomas Gillespie, president, in the chair. Mr. A. T. Turner read a paper entitled "Lead: Its Manufacture and Uses." Having described the characteristic qualities of the metal, the writer stated that the principal sources from which the ore is obtained are situated in Great Britain and Spain, but he mentioned that there was at least one deposit near at hand—namely, at Newtownards—which, however, is not worked. There are various methods of treating the ore, the principal of which are the ore hearth or Scotch furnace, and precipitation in a blast furnace with another metal, generally iron. In order to recover the lead which is carried over with the fumes from the furnace, the gases are passed through long, tortuous passages on the way to the chimney. These passages are sometimes several miles in length, the gas taking, in some cases, three and a half hours to reach the chimney. As there is generally a certain quantity of silver found in conjunction with the lead, several processes of desilverising are in use, the principal of which, Rosen's, was described. For the manufacture of sheet lead the metal is melted in lots of about ten tons, and cast into cakes 7ft. 10in. by 5ft., and these are passed through a rolling mill about 150 times, when the sheet is about 30ft. long by 7ft. 10in. wide. This is then cut into sheets of various sizes by a series of knives in connection with the rolling mill. The lining for tea boxes is made by the Chinese in a very primitive way, by hammering it between two flat stones covered with paper. The sheet is, notwithstanding, very uniform in thickness. The manufacture of lead pipes and of shot was described, and also the use of lead in alloys.

ART AND CHARITY.

Sir H. Campbell-Bannerman, M.P., presided, at the Hôtel Métropole, over the eighty-third anniversary dinner of the Artists' General Benevolent Institution, and, proposing "Prosperity to the Institution," said since its foundation it had expended £122,398 in relief of distress. Last year 234 applicants received at its hands £4095, the only claims recognised being those of merit and need, and the dignity and self-respect of the recipients being safeguarded by the fact that their names were not divulged. In the political sphere much was said nowadays of opening up new markets in countries where, he feared, there would for some time to come be little demand for pictures and statuary. But artists created their own markets by producing a higher and higher level of Art, whereby interest was created, sympathy was engaged, and the desire for possession was created. Every year even an ignoramus like himself could see the progress that was being steadily made in British Art. Artists did not work for themselves; they worked for the public, and no one, not even the most unæsthetic—and to nobody more properly than to himself did that description apply—could fail to appreciate the enormous advantage to the country of that independent body of men of genius who worked, not for money or glory, but because they possessed a capacity and desire which compelled them to strive to raise the taste, brighten the homes, and brighten the lives of the people among whom they lived.—Mr. Frederic Harrison proposed "The Royal Academy and Kindred Societies."—Mr. Davis, R.A., and Mr. Waterlow, A.R.A., responded.—Mr. Alma Tadema proposed "Our Guests," and Mr. Comyns Carr responded.

The Duke of Atholl has decided to demolish Dunkeld House, and to build a much larger mansion, to be called Dunkeld Castle, in the neighbourhood.

Enquiry Department.

"SPECIFICATION" Enquiry and Legal Departments.

The replies to queries in the "Enquiry" and "Legal" Departments of the "Builders' Journal" being necessarily limited by consideration of space, readers who wish to obtain more complete and exhaustive answers are recommended to apply to the "Legal" and "Enquiry" Departments of "Specification."

Legal advice and opinions on Professional and Constructional matters will promptly be sent through the post.

Rules with regard to these enquiries will be found on page 2 of "Specification."

Terms of Subscription:—12s. per annum, payable in advance, for the first four quarterly numbers, carriage paid to any part of the United Kingdom. Subscribers abroad are requested to remit an additional 2s. 6d. to cover the extra cost of carriage.

CORNISH VIADUCTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would your contributor, Mr. Charles G. Harper, kindly oblige me with the names and heights of as many of the Cornish viaducts as are known to him?—Yours faithfully,
C. F. W. D.

The following is a list, as complete as I can make it, of Devon and Cornish viaducts, old and new, of any great size, on the G.W.R.:

Cochwood	Trenance
Blackford	Gover
Cornwood	Carvedras
Ivybridge	Carkenwich
Pennycomequick	Truro
Keyham	Redruth
Westonmill	Renpons
Saltash Bridge	
Trematon, Saltash	Falmouth Branch:
Creek	Penwithers
St. Germans	Ponsanooth
Tresulyan	Treliever
Tevalya	Collegewood
Coldrewick	
Treveddo	Ashburton Branch:
Liskeard	Ham Green
Moorswater	Bickleigh
S. Austell	

There are some forty smaller ones. The highest of the larger range from 153ft.

CHARLES G. HARPER.

THE foundation stone has been laid of a new organ chamber, to be erected on the west side of the little church at Fauls, Whitchurch. Mr. Edmund Ferry, of Spring Gardens, London, is the architect, and the builder is Mr. G. Dodd, Whitchurch.

AN appeal is being made for £2000 to carry out the necessary repairs to East Horndon Church, Brentwood, which is of fifteenth century construction, but has been closed on the order of the Bishop as unsafe until it can be put into good order.

THE foundation stone has been laid of the chapels at the new cemetery which is being formed at Brandwood End, King's Norton, by the King's Norton Rural District Council. Mr. F. Brewin Holmes is the architect, and Mr. E. J. Charles the builder.

THE decoration of the chancel of Lustleigh Church has been completed by the fixing of the reredos, designed by Mr. Hallward. It is the gift of Mrs. Wise, who has also carved the frame of the reredos and the four panels which divide the paintings. The subjects of the paintings are the Nativity, the Angel and the Shepherds, and the Adoration of the Magi.

KEYSTONES.

THE foundation stone has been laid of the new church of St. Aidan, in the parish of Bradford, Manchester.

THE memorial stones have been laid of the Independent Methodist school chapel at Chorley.

THE foundation stone has been laid of a new block of buildings for church schools at Kettering, which will cost about £5000.

THE new elementary schools at Dursley have been formally opened. The building cost about £2000.

A PUBLIC HALL is to be built at Pitlochry, Scotland. Competitive designs for the hall are to be invited.

THE Birkenhead Town Council has decided to municipalise the borough tram system, and to provide the town with electrical tramways at an estimated cost of £182,000.

A LOCAL GOVERNMENT BOARD inquiry has been held at Mablethorpe into the application of the Urban District Council to effect a loan for constructing public walks and promenade, and the erection of cabstands, &c.

AT Swansea a Local Government Board inquiry has been held respecting an application from the Corporation for provision to borrow another £100,000 on account of its new water works scheme at Cray.

THE foundation stone has been laid of the new Town Hall at Enniskillen. The building, which is to cost close on £10,000, is being erected by Mr. James Harvey, the contractor, from plans prepared by Messrs. Anthony Scott and Son, Drogheda.

THE new Victoria wing of the Morley Convalescent Home for Working Men at St. Margaret's, Dover, has been opened. The new wing provides for the accommodation of sixty more patients, as well as a large dining-hall and administrative offices.

SPIERS AND POND, the well-known hotel proprietors and caterers, have just completed the purchase of nine acres of land in the Park, Buxton, whereon to erect a hotel of the premier class. The architects for the building are Messrs. Bodley and Garner, of London.

THE Harold Club, at Low Moor, has undergone extensions. The principal alterations have affected the assembly room on the ground floor, which has been considerably enlarged, whilst immediately above it the billiard-room has been similarly extended, all at a cost of about £850. Mr. F. W. Milligan, Healey, was the architect.

THE Working Men's College, Great Ormond Street, London, is about to be extended at a cost of £15,000. The new buildings contemplated will include a large hall for lectures and meetings, a laboratory for the science classes, and a larger museum. The new buildings, which will be in the rear of the college, will be known as the "Tom Hughes Memorial Buildings."

IN the Queen's Bench, Miss Jervis Smith, of Brooksford Hall, Doveridge, near Derby, obtained £555 damages and costs against a Weybridge builder named Greenfield in respect of a broken arm, sustained by the fall of a greenhouse cistern, which defendant had fixed at her aunt's house. Justice Day observed that there had been gross and childish negligence on the part of the defendant.

A MONUMENT has been erected in Whittington churchyard to the memory of the late Bishop Walsham How. The memorial is of brown Portland stone, and stands about 20ft. high. It takes the form of an octagonal column standing on a massive square base of three steps. On the column is carved a bishop's staff and mitre, and a figure of the Good Shepherd, recessed within a cross, forms the apex.

THE Secretary of State for War has promised a site for the proposed new Rochester Diocesan Sailors' and Soldiers' Home, to be erected in Military Road, Chatham. The plot of ground referred to is a portion of the Government enclosure known as "The Shrubbery"; and the Secretary of State has signified his willingness that the Chatham Corporation should lay out the rest of the land as public pleasure gardens.

CONTRACTS OPEN.

TO BUILDERS.

The Commissioners of H.M. Works and Public Buildings are prepared to receive TENDERS for the ENLARGEMENT of the Head Office at Guildford.

Drawings, specifications, and a copy of the conditions and form of contract may be inspected, and forms of Tender obtained, on application to the Guildford Postmaster.

Bills of quantities will not be supplied.

The Commissioners do not bind themselves to accept the lowest or any Tender.

Tenders are to be delivered before TWELVE o'clock noon on WEDNESDAY, the 25th inst., addressed to the Secretary, H.M. Office of Works, &c., 12, Whitehall-place, London, S.W., and endorsed "Tender for Guildford Post Office Enlargement."

REGINALD B. BRETT,

H.M. Office of Works, &c.

May 11th, 1898.

FIVE SHOPS, 67 to 75, Goldhawk-road, W. (Geo. Soley, Esq.)

BUILDERS desirous of Tendering for the ERECTION of the above ONE-STORY SHOPS (with basements) will please send in their names to the Quantity Surveyor, Mr. H. BUSHELL, 33, New Bridge-street, Ludgate-circus, E.C., on or before MAY 24th, after which date quantities will be sent out.

The plans, &c., can be seen at the Surveyor's office. The owner does not bind himself to accept the lowest or any Tender. WALT. J. WOOD, Architect.
1, Finsbury-circus, E.C.

HORNSEY URBAN DISTRICT COUNCIL.

TO ENGINEERS AND IRONFOUNDERS.

The Hornsey Urban District Council are prepared to receive TENDERS for the SUPPLY of about 150 pairs of TREE GRATINGS.

Tender forms and particulars may be obtained on application to Mr. E. J. LOVEGROVE, C.E., Engineer to the Council.

No Tender will be considered unless on the prescribed form.

Sealed and endorsed Tenders are to be deposited in

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	At Wharf.	ex Ship within one month.	At Wharf.	
17 1/2 x 3 x 3	12 3	11 2	16 6	
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1 x 4 1/2 " 42/6 " 21/- " "

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SUPPLEMENT FOR

SURVEYORS · BUILDERS · SANITARY ENGINEERS.

MAY 18TH, 1898.

Builders' Notes.

WITHOUT attempting to fix any responsibility for the collapse of the large building at Westminster which recently caused the loss of so many lives, we may point out that the evidence given at the inquest was peculiarly alarming. It was stated that some of the bricks used were so soft that they crumbled to pieces in the hands of the bricklayers, and that large numbers of them had to be sent to the mortar-mill. Yet "thousands of these bricks," we are told, were used in the walls, while the iron girders were left unbolted—merely, it would appear, resting on this flimsy brickwork. The latter statement, it is true, was disputed; but the evidence altogether is highly significant. These collapses of new buildings are becoming much too frequent. Only recently we reported another case in which several persons were injured. In regard to the Westminster affair, the question which at once suggests itself is: Where was the District Surveyor, who is supposed to constantly examine buildings in progress?

A MEETING in connection with the Yorkshire Federation of Builders' Associations was held at Keighley recently, when the principal speaker was the Mayor of Huddersfield (Alderman Jessop), who, alluding to the Workmen's Compensation Act, prophesied that many of the smaller contractors would be ruined by the increased demands of the new Act, in the event of a few unfortunate accidents occurring, unless they had their workmen insured. He thought it was coming to this—that contractors would have to specify an allowance for insurance when making out their estimates for contracts.

CONSIDERABLE progress is being made with the harbour works portion of the Midland Railway's Heysham scheme. The contracts for the construction of the two breakwaters and pier, which were secured by Messrs. Price and Wills, of Westminster, came to £480,000—an outlay which makes no provision for the various dry and wet docks which will have to be constructed later. It includes merely the excavation of a harbour of forty-six acres, the construction of a pier 2000ft. long down the centre, and the completion of the two break-

waters, the longer one to be a mile and a half in length, the other about a mile. These breakwaters are to consist of embankments 500ft. wide at the root, and tapering to 150ft. In operations of this nature there is always a great amount of preliminary labour to be gone through. In this case the contractors have had to lay down some seven miles of working roads, and for their water supply they found it necessary to put in about 7000ft. of pipes before they could commence operations in real earnest.

THE breakwaters are not being built up to their full height or width, but are being raised just sufficiently to hold the sea at bay in the roughest weather. One of the embankments has already been carried out some 1500ft., and the other about half that distance. They are already well above high-water mark, though there is another 6ft. to be added to their height. The contractors anticipate that they will get the embankments round the site of the new harbour in about another twelve months. The embankments are built up on a solid foundation of rock. A trench is scooped out, 7ft. deep and 25ft. wide, and is then filled up with rock. This is the foundation for the toe of the breakwater. The embankment is 20ft. high at the start, and increases in height as it goes further out. In the work of removing the cliffs, some 2,000,000 cubic yards of soil will have to be got out; in making the harbour about the new pier navigable for vessels, some 1,500,000 cubic yards of sand will have to be excavated.

At a meeting of the St. Giles's Board of Works, the Works Committee reported that they had considered the question of widening High Holborn between Southampton Row and Southampton Street, and were of opinion that, in rebuilding, the line of frontage should be set back 7ft. The surveyor (Mr. Wallace) said he was informed at the Bedford Estate office that the London County Council had been inquiring on what terms the street could be widened by 10ft. After some discussion, the Board decided to ask the Council to widen the street to this extent.

An important street improvement is about to be carried out at Cardiff. Allusion is made to the widening of Working Street, an operation which has been quietly but steadily in progress for the past year. Working Street, as it at present exists, is a far different thoroughfare from what it once was. In 1854

its width was only 22ft. It was not altered till 1875, when the width was increased to 36ft. By the Corporation Act of 1894 it was increased at the widest part some 15ft., and it is now about 50ft. wide on an average. The widening of Working Street is not the only improvement which has been made. The Corporation, empowered by Parliament, have taken a portion of the churchyard on the north for the purpose, and the graves and their contents have been removed to the cemetery. On the south side of the churchyard the rough rubble wall which acted as a barrier between God's acre and the outside world has been pulled down, and in its place a dwarf wall, surmounted by an iron railing, has been put up. In addition, a footpath, crossing the churchyard from the entrance to the market to Working Street, has been made.

THE Court of Common Council, at the meeting last week, had under consideration the report of the Streets Committee relative to the inquiry in respect of contracts in regard to which there has been much comment of late. The allegations reflected on the contractors for engineers' and smiths' work—Messrs. J. F. Clarke and Sons—and certain officials of the Public Health Department, and were to the effect that the four inspectors of pavements and other subordinate officials were in the habit of receiving periodically gratuities from the contractors, and that the vouchers signed by the inspectors contained entries as to time which had not been expended on the work, and that in respect of some of the vouchers no corresponding work was done at all. The information was voluntarily supplied to the City Solicitor by two discharged clerks of the contractors. The inspectors emphatically denied having received any gratuities whatever, but the contractors, who at first also denied the statement, eventually admitted that they had made various payments to officials of the late Commission of Sewers for many years past. During the years 1896 and 1897 periodical payments had been made to the four inspectors of pavements, amounting to from £60 to £70 each, and smaller sums to minor officials. The committee recommended the dismissal of the four inspectors and a fifth official and the stopping of the pension of another person. They also recommended that no further orders should be given or payments made to Messrs. Clarke, and that the committee should be permitted to continue their inquiries with a view to the institution of such proceedings as the circumstances might appear to justify.—The report was adopted.

POLICE STATIONS AND PRISONS.

By GEORGE H. BIBBY, F.R.I.B.A.

VI.—CONCLUSION.

IN the year 1796 there were eighteen prisons in London, but fifty years later these had been reduced to about one dozen. A writer of the latter period stated that all the great London gaols were provided with stands of arms by which men could be armed in a few minutes, besides signal-rockets, which would instantly convey intelligence to the Horse Guards and to the barracks in St. James's and Hyde Parks, of any attack, so that 2000 or 3000 men could be concentrated at any prison in half-an-hour. From this it may be assumed that the planning of stone prisons included a considerable provision of apartments for other purposes beyond the housing of prisoners and turnkeys, &c.

At the King's Bench prison, at the time of a plague, privileges for prisoners to reside within three miles of the prison were first granted; such persons were known as prisoners within "The Rules," and for these rules large sums were paid to the Marshal, who, in one year (1813) received no less than £2823 from the rules and "liberty tickets," and £872 from the sale of beer; this was probably one reason for excluding publichouses and places of amusement from the privileges of the rules. In later years the rules were abolished, the prisoners classified, and the prison became eventually a military institution.

This prison originated in very early times; it was probably coeval with the Court of Queen's Bench itself. At a very early period there were three principal prisons in London—the Queen's Bench Prison, the Fleet Prison, and the Marshalsea.

The Queen's Prison was appropriated to prisoners committed by the Court of Queen's Bench, the Court of Exchequer, and Court of Common Pleas; the Fleet Prison received prisoners from the Court of Chancery; and the Marshalsea from the Lord Steward's Court, the Palace Court, and the Admiralty. The number of prisoners to be found in the Queen's Bench Prison was usually very great, for prisoners from any other prison could be transferred there by writ of *habeas*. Prisoners are said to have availed themselves of this privilege, because in the Queen's Bench they had amusements, such as playing at ball and other games, by which time was whiled away.

Such prisons as the above contrasted greatly with others contrived in earlier times. For instance, in the Tower of London chambers were specially planned for the torture of the prisoners, and one of these was called "Little Ease," and was so constructed that the prisoner found it impossible to stand erect or to lie down except in a cramped position. Other cells are said to have been full of vermin, especially rats, which at high water were driven up in shoals from the Thames.

But perhaps one of the most terribly-devised prison cells was that said to have been erected in an Italian prison, and which was so contrived that the walls very slowly approached each other (it is difficult to conceive how this could have been done), while the ceiling descended (during seven days), finally crushing the occupant to death, his bed, by an ingenious arrangement, being converted into a coffin when touched by the approaching walls.

The glaring defects of the prisons existing at the commencement of this century appear to have been well known to many writers, and particularly to the late Charles Dickens, who describes a foreign prison on a certain very hot day in these words: "In Marseilles that day there was a villainous prison. In one of its chambers—so repulsive a place that even the obtrusive stare blinked at it, and left it to such refuse of reflected light as it could find for itself—were two men. Besides the two men, a notched and disfigured bench, immovable from the wall, with a draught board rudely hacked upon it with a knife, a set of draughts made of old buttons and soup bones, a set of dominoes, two mats,

and two or three wine bottles. That was all the chamber held, exclusive of rats and other unseen vermin, in addition to the seen vermin—the two men. It received such light as it got through a grating of iron bars, fashioned like a pretty large window, by means of which it could be always inspected from the gloomy staircase. There was a broad, strong ledge of stone at this grating, where the bottom of it was let into the masonry, 3ft. or 4ft. from the ground. A

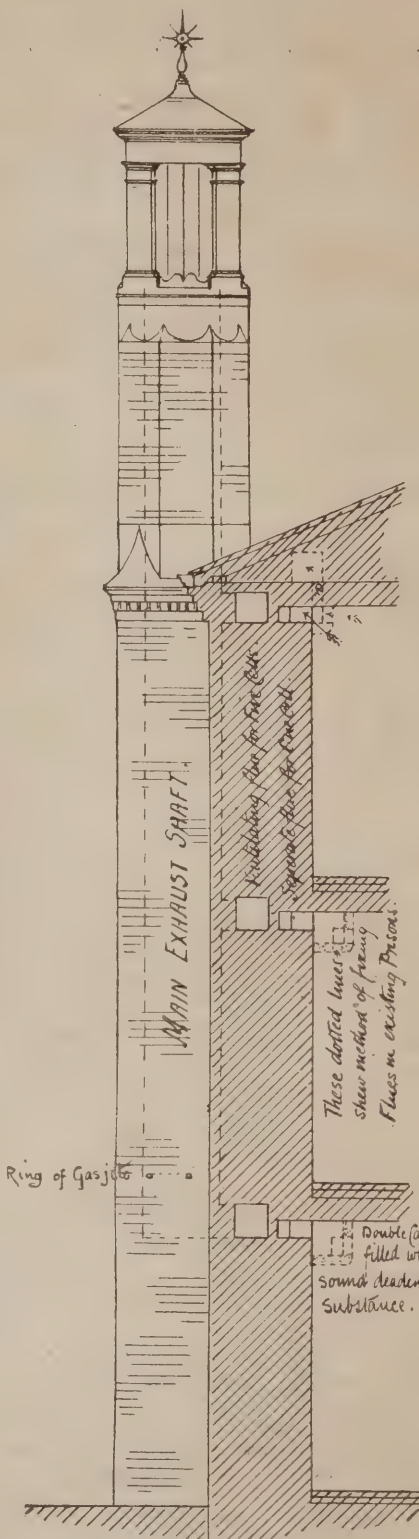


FIG. 15.

prison taint was on everything there; the imprisoned air, the imprisoned light, the imprisoned damp, were all deteriorated by confinement. As the captive men were faded and haggard, so the iron was rusty, the stone was slimy, the air was faint, the light was dim. Like a well, like a vault, like a tomb, the prison had no knowledge of the brightness outside, and would have kept its polluted atmosphere

intact in one of the Spice Islands of the Indian Ocean." This is evidently the description of cell taken from actual observation; the insanitary condition of such apartments in other respects is not even hinted at, but very little consideration is necessary for concluding that persons confined in such rooms from one year's end to another, without being permitted once to leave them for any purpose, must have suffered untold agonies.

The same writer also describes English prisons of the period, and amongst them the Marshalsea, to which I have before referred. He writes as follows:—"Thirty years ago there stood, a few doors short of the Church of St. George, in the Borough of Southwark, on the left-hand side of the way going southward, the Marshalsea Prison. It had stood there many years before, and it remained there some years afterwards; but it is gone now, and the world is none the worse without it.

"It was an oblong pile of barrack building, partitioned into squalid houses standing back to back, so that there were no back rooms; environed by a narrow, paved yard, hemmed in by high walls, duly spiked at top. Itself a close and confined prison for debtors, it contained, within it, a much closer and more confined jail for smugglers. Offenders against the revenue laws, and defaulters to excise or customs, who had incurred fines which they were unable to pay, were supposed to be incarcerated behind an iron-plated door, closing up a second prison, consisting of a strong cell or two, and a blind alley, some 14 yds. wide, which formed the mysterious termination of the very limited skittle ground in which the Marshalsea debtors bowled down their troubles—supposed to be incarcerated there, because the time had rather outgrown the strong cells and the blind alley. In practice they had become to be considered a little too bad, though in theory they were quite as good as ever. Hence the smugglers habitually consorted with the debtors, except at certain constitutional moments when somebody came from some office, to go through some form of overlooking something, which neither he nor anybody else knew anything about. On these truly British occasions, the smugglers, if any, made a feint of walking into the strong cells and the blind alley, while this somebody pretended to do his something; and made a reality of walking out again as soon as he hadn't done it."

The condition of many prisons both of this country and of the Continent was, in earlier times, a source of great danger, not only to those immediately connected with them, but also to the general public; the filthy conditions of towns in England in former times is scarcely to be imagined; the unpaved streets were made the receptacles for filth and refuse of all descriptions. Cities and towns were thus converted into districts not less malarious than the swamps of the Indies. Renewal of air was never regarded as a vital necessity, and fearfully at times was the ignorance punished. In our judicial records will be found more than one mention of a "black assize," for instance at Oxford in 1577, three hundred individuals who had attended the court, as well as the judge and sheriff, died from "malignant" fever within forty-eight hours of the opening of the proceedings! The disease was communicated by the wretched prisoners who had been shut up for months in the noisome cells of an unventilated prison; and a similar instance occurred in London at the Old Bailey in 1756, when the Lord Mayor, the two judges, besides several persons of note, and others met their death as the result of "jail fever," caused by the insanitary and ill-ventilated prisons.

But there are very many difficulties of a nature special to prisons; as regards the ventilation of modern prisons. From the necessity of keeping the cells thoroughly isolated additional precautions must be adopted to prevent prisoners from speaking or telegraphing to each other by means of ventilating openings or flues. Any system that does not preserve isolation, while insuring a continuous change of air in each cell, is practically useless, and as there has really been no system by

ch several cells may be ventilated into one ft, while sound may be effectually pre-
ted from passing from one cell to another,
arrangement shown in Fig. 15 has been
ised with the view of overcoming the diffi-
y, and the system is contrived as follows :
Ve assume that it is required to ventilate a
k or wing of a prison consisting of, say,
e tiers of cells on each side, and composed
irty cells in each tier or row, making 180
s altogether.

Three brick flues, with an internal measure-
t each of 2ft. 6in. x 2ft. x 6in., are built
equal distances against each of the side
s and carried up above the roof, where
are surmounted by a self-acting air-pump
tilator, 4ft. in diameter. Three horizontal
fts run along each tier, immediately under-
th the ceiling close to the wall, or they may
uilt in the wall as shown. Each of these
fts is connected with ten cells by means of
ected openings, varying in size according
he distance of the opening from the upcast
ft, so as to equalise the quantity of air
acted from each cell. Three of these
izional shafts (one on each tier) are
ected with one of the upcast shafts
ch forms a junction in the centre. The
izional shafts vary in size according to
r proximity to the top of the upcast shaft,
as to equalise the quantity of air drawn
n each tier. A ring of gas jets is fixed at
bottoms of the upcast shafts for the pur-
e of warming them in cold weather, and
venting condensation of the ascending
umn of vitiated air. The advantages of
system, which has been carried out by
rs. Robert Boyle and Son Limited, of
don and Glasgow, are, that every cell is
ally and separately ventilated, whilst per-
isolation is secured; it is impossible for
ads to pass from one cell into another through
ventilating shafts or openings, whilst as
ay as from ten to twenty cells can be venti-
d with one pipe, and three or four of them
into one upcast shaft. An important point
hat there are no valves used in connection
h any part of the system, so that when
fixed further attention is not required,
the ventilation cannot be interrupted
ugh negligence, as is usually the case
re ventilating arrangements are employed
t require much looking after. Fresh
med air is introduced into each cell
ugh vertical channels cut in the walls,
ected outside and inside with strong iron
tings, and fitted with an air-warming
ngement. These channels open into the
eries on the inside of the building, and are
plied with air from two large openings at
h end of the block, through which the
h air passes over a heating arrangement in
l weather, so that it is thoroughly warmed
re entering the cells, through which it
st pass before finding an exit. In an
lier chapter I have given illustrations
wing other modes for ventilating police-
ion cells where these are arranged upon
floor level only, but wherever there are
er floors to be ventilated, and large
ubers of prisoners to be arranged for, the
nning of the buildings necessarily becomes
licated, not only as regards ventilation,
as regards all details of construction.

an inquiry has been held at St. Helen's
vn Hall, into an application by the corpora-
a for sanction to borrow £13,000 for the pro-
ion of refuse destructor works at Boundary
ad.

HE question of the provision of artesian
ls for public water supplies to small towns
l villages without resorting to an expensive
tem of pumping appears to have been solved
he parish of Alveston, a suburb of Strat-
lon-Avon. The history of the scheme
es back several years, and water for
nestic use was obtained from shallow wells,
ny of which were said to be polluted. Some
ishioners decided upon the construction of
artesian well, and a loan of £1100 was
sed. The work has been completed, and
abundance of excellent water provided. It
ntended to construct a small reservoir near
he well.

Surveying and Sanitary Notes.

At the meeting of St. George's Vestry, Southwark, a question concerning the in-
sanitary condition of the church of St. George-
the-Martyr, Borough, was considered. The
Public Health Committee reported that the
Medical Officer of Health (Dr. Waldo) had,
at the request of the rector (the Rev. F.
Somerville), inspected the crypt of St. George's
Church. He reported that the air was musty,
that bones were lying about, and that there
were cracks in the walls which made the church
dangerous by allowing effluvia to escape into
the building. After some discussion, a motion
for the question to be referred back to the
committee for some action to be taken was
adopted.

THE new graving dock at Cessnock, for the
Clyde Trustees of the harbour and docks of
Glasgow, has been opened. It is large enough
for the biggest warship or liner likely to be
built for many years. The entrance to the
dock is 85ft. in width. A gate divides the
dock into two lengths of 460ft. and 420ft. re-
spectively, and there is thus accommodation
at one time for two steamships of considerable
size. At the bottom of the dock the width is
87ft., and at the top it is 115ft. The depth
of water is 26½ft. The bottom consists of a
brick invert nearly 6ft. thick, covered by con-
crete 6ft. thick at the centre, and about 18in.
at the sides, so as to give a camber. The
floor is causewayed with granite. The side
walls are of concrete increased in 12-inch
sheet piling and a brick wall. The alters, or
steps, are of concrete, faced with granolithic,
and the side walls and end walls are sur-
mounted by a massive granite cope. The
total cost of the dock, including pumping and
other apparatus, is about £240,000. Mr.
James Deas, the engineer of the Trust, is the
designer of the dock, and the works have been
undertaken by the Trustees' own employees
under the superintendence of Mr. Deas.

At the Guildhall, Norwich, Mr. Arnold
Taylor, C.E., of Westminster, has sat in an
arbitration case of disputed compensation
under the Public Health Act of 1875, between
Mr. Henry Hides, merchant, of Red Lion
Street, and the Corporation of Norwich in
respect of the construction of a sewer through
land owned by Mr. Hides, situated between
Hellesdon Road and the Watering, Heigham.
The sewer was constructed in July, 1897, and
Mr. C. C. Rix Spelman, acting on behalf of Mr.
Hides, claimed £325 damages. The Corpora-
tion and Mr. Hides could not agree as to the
amount of compensation, so Mr. Hides
appointed Mr. Spelman as arbitrator. The
Corporation appointed the city engineer as
their arbitrator. The two arbitrators could
not agree, so Mr. Hides applied to the Local
Government Board to appoint an umpire, and
the Local Government Board accordingly
appointed Mr. Arnold Taylor. After the
evidence the umpire reserved his decision
pending a personal inspection of the land.

THE Medical Officer of Health for Worces-
tershire (Mr. G. H. Fosbrooke) has, at the
request of the Sanitary Committee of the
County Council, investigated the working of
bacteriological filters, or, as they are sometimes
called, bacteriological tanks, as a means of
dealing with sewage. In summing up his
report on the working of various appliances of
this character, he points out that even though
some of these bacteria tanks have been tried
on a practical scale, still they cannot be said
to have as yet passed beyond the experimental
stages. The action of suitable land (the best
of all sewage purifiers) and of bacteriological
filters, is much the same. Indeed the inter-
mittent filters act very similarly to the down-
filtration beds laid out many years back by
Mr. Bailey Denton, on the advice of Dr.
Frankland, at Merthyr Tydfil. "For such
reasons," he proceeds, "I submit that the
bacteriological tanks are most promising, and

will probably lead to a revolution of sewage
disposal. That this is so, is evidenced by the
fact that Parliament, acting on the advice of
the Local Government Board, have just ap-
pointed a Royal Commission to report on sewage
disposal generally. Should the bacteriological
tanks prove as successful as they promise to
be, then many local authorities will most
probably be relieved from the too often in-
superable difficulty they experience in provid-
ing land for sewage treatment, without which
the Local Government Board will not at
present sanction any sewerage scheme. It
seems to me probable that in the near future
the present regulations of the Local Govern-
ment Board with respect to sewage will have
to be materially modified, and that even should
the provision of land be insisted upon, still
the adoption of the bacteriological system will
so greatly assist in the disintegration of such
refuse that the area asked for will be con-
siderably less than it now is. As previously
stated, the gentlemen who have developed the
bacteriological tanks affirm that the effluent
from sewage after such treatment may safely
be passed into watercourses; but in my opinion
the relative proportions of the effluents and
the streams must be carefully taken into
account. Of course it should be borne in mind
that the rates of purification are governed by
the extent, depth, and construction of the
filters, and that in cases where sewage effluents
of high standards are necessary the filtering
operations must be proportionately perfected.
With respect to the character of the sewage
with which bacteriological tanks are capable
of dealing, a decidedly open view should be
entertained, for, in my opinion, it is not at
present proved that manufacturers' refuse can
be satisfactorily dealt with, or that acid waste
refuse if perceptible in sewage will not stultify
microbial action."

An important case has been disposed of in
the House of Lords. It was that of Pasmore
and others v. Oswaldtwistle Urban District
Council, and was an appeal from a decision of
the Court of Appeal. The action was for a
mandamus commanding the defendants (re-
spondents in the present appeal) to cause to be
made such sewers as may be necessary for
effectually draining their district for the
purposes of the Public Health Act, 1875, and
to give facilities for enabling the plaintiffs to
carry the liquid proceeding from his factories
or manufacturing processes into the sewers
under their control. The action was begun
by Philip Cadell Peebles (since deceased) who
owned and carried on the business of paper
making at a factory called the Whiteash
Paper Mill, and before it was instituted Mr.
Peebles requested the defendants, and the
defendants refused, to provide sewers for the
reception of the liquids from the paper mill.
The claim was based on the Public Health
Act, 1875, sections 15 and 21 of which impose
on a local authority the duty of providing a
proper sewage system. The respondents,
however, contended that such obligation was
not one towards the appellants or any indivi-
dual occupier, but for the benefit and purposes
of the whole district. They also relied upon
section 299 of the Act, which prescribes, as the
remedy in such a case, complaint to the Local
Government Board. That section enacts that
when such complaint is made the Local
Government Board, if satisfied after due
inquiry that the local authority has been
guilty of default, shall make an order limiting
a time for the performance of the duty so
neglected. That remedy, the respondents
urged, was the only and exclusive one in case
of any default by the respondents. The case
was heard by Mr. Justice Charles on Novem-
ber 11th, 1896, and by an arrangement the
question of law was argued before any evi-
dence was gone into. The learned Judge
granted the *mandamus*, but on March 18th,
1897, the Court of Appeal reversed that decision
and dismissed the action with costs.—The
Lord Chancellor, in now moving that the
appeal be dismissed, said there was nothing in
the Public Health Act which would justify
the issue of a *mandamus*. The whole purview
of the Act made impossible the application of
such a remedy.—The other judges concurred.

MASONRY.

BY JAMES WILDING.

IV.—THE ANNULAR VAULT.

WHEN a semicircular or other arch has to be turned over a passage which is circular in plan, it is necessary to develop the moulds as illustrated here. The line KN is the one usually difficult to grasp in its relative position to LJ. If it is kept in mind that KN represents a vertical line, this difficulty is lessened considerably. For the purpose of mould development, KN must be turned into view.

Taking X as centre, and XD, XE, XB, XA, respectively, as radii, describe the quadrants, continuing E to F and B to B1 on LJ. With C as centre, draw the elevation of the arch.

Divide soffit into three parts, lettered TUE (any number may be used, three are used here for sake of clearness). From C, through these divisions draw the lines CO, CS, cutting the line KN at S and O.

With S as centre and ST as radius describe S-8. With S as centre and SV as radius describe S-7.

These lines may be produced indefinitely, until long enough to cover the whole of their relative portion of the vault; it needs little explanation, however, to make it clear that this is unnecessary. Any convenient length may be taken, say 3ft., and the heading joint marked on from the centre S, the line 7-8 is the heading joint in this case.

Repeat this operation for the second joint, producing UW to cut KN at O. The work for this is exactly similar to that described for VT. The plans AB, ED, are similar to the plan of the wall.

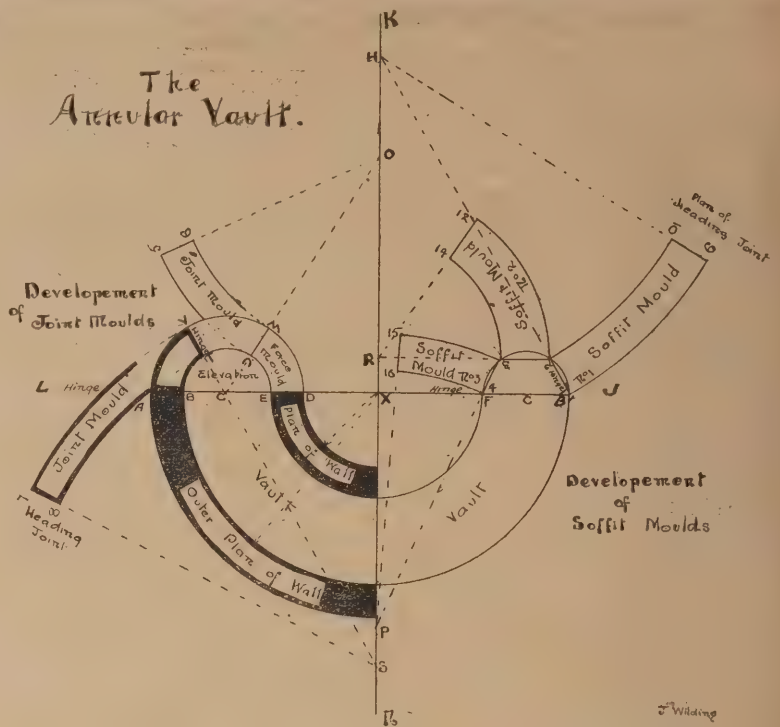
The soffit developments are all shown. It is always difficult to convey the idea that the curved lines shown in these developments all represent lines parallel to the level line, and the further fact that when bent into position they fit each other. If the soffit mould No. 1 is cut from B1 to 9 and from 10 to 2 and bent round the plan BB1 the round line B19 will lie on the level paper. Similarly the other mould may be bent into position.

By arranging the various moulds together much description is avoided. It will be seen that these moulds represent the underside or soffit of the arch forming the covering, and are obtained by producing the lines to touch KN, this they do in H, E, and S respectively, the length of each soffit mould is decided on, and the plan of the heading drawn from the centre used to describe the relative curves.

It is advisable that the example be drawn on a piece of cardboard, in order to enable the various developments to be turned into position. The lines marked Hinge line on illustration indicate where best to turn the different figures.

CIRCLE ON CIRCLE ARCH.—In order to make this arch clear, a complete set of developments is shown. The jambs of the openings are taken parallel to WC. With C as centre, and C1, C7, as radii describe the elevation. Divide

The Annular Vault.



soffit into any number of equal parts (in this case five), from C draw joint lines through these points. From 6 to the left, set off on line NM the divisions 6 to 1, draw these lines square to NM, indefinite in length. Parallel to WC drop lines lettered 1 to 6 on soffit of arch, to touch the plan. Parallel to NM draw from these points to intersect lines 1 to 6 perpendicular to NM.

Tracing the curve through these points the face lines of the soffit of the arch is obtained. Similarly project lines for back of soffit, and draw lines through points of intersection. The moulds marked soffit moulds 1, 2, 3, 4, 5, give the required developments for the soffit. By inspecting the development of the extrados or back, further description is rendered unnecessary.

To develop the joint mould 2:

Take the joint line p-a, square a-e from p-a, square c-f from p-a, square p-h from p-a, drop p to touch plan, drop a to touch plan, drop c to touch plan. The amount of curve from 5 to Q on plan is the amount in the face line p-a. From 5 on plan draw a line at right-angles to 5a, the distance a-b in plan is transferred to the elevation, and is set off from a on a E.

Similarly the distance c-d is set off on c-f; from b, through d to p draw the curved face line bdp.

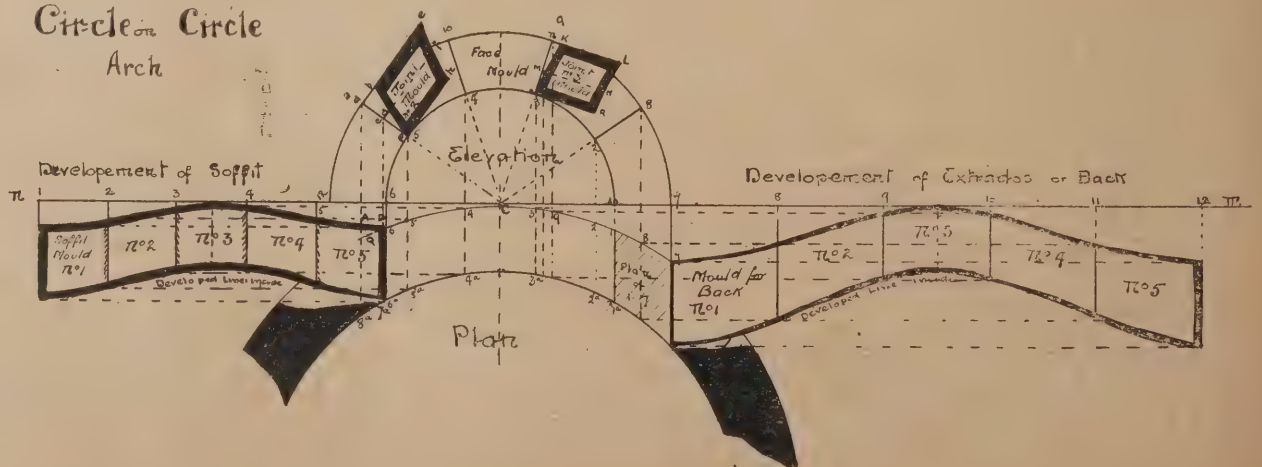
The contour of the back face line efh is obtained by gauging from 5 to 5a, d to 7a, a to 8a (all on the plan), and transferring these measurements to the elevation, making p-h equal 5, 5a, c-f equal d, 7a, a-e equal a, 8a. The line efh is the shape of the face at back.

Joint mould No. 3 is developed in a similar manner, the amount of curve being very slight.

The ordinary face mould can be used for the arch stones, the soffit back and joints finished therefrom. The faces are worked from the joint soffit and back moulds, and with a template made to fit the plan, used horizontally.

STEADY progress continues to be made with the Welsh water scheme for the Birmingham Corporation. The Knighton tunnel has just been completed. Forming portions of the conduit from the Elan Valley to Birmingham will be two tunnels, about 8ft. in diameter. One of these, four and a half miles in length, and nearest to the Elan Valley, is the Dolau tunnel. The other is the Knighton tunnel, extending from the town of Knighton to the Lugg Valley, a distance of two and a half miles. Headings for this tunnel were commenced at either end. The two sets of excavators have now been able to join hands. The case of the Dolau tunnel, owing to its greater length and the need for shafts to remove the excavated material, was commenced in two sections. The first half was completed a month ago, and, although the calculations and measurements had to be made upon the data afforded by a base line of only 16ft. at the bottom of a 300ft. shaft, they were so accurately worked out that the centre lines of the two headings met accurately as regards level, and with an horizontal divergence of no more than half an inch.

Circle on Circle Arch



THE LONDON BUILDING ACT.

A NEW QUESTION RAISED.

IN the Queen's Bench Division recently, before Mr. Justice Wills and Mr. Justice Kennedy, the case of *Paynter v. Watson* was heard. This was a special case raising a new question under the London Building Act, 1894, section 43, as to the right of an owner of premises to rebuild them in a different manner to the old buildings without first obtaining the leave of the London County Council. Mr. Macmorran, Q.C., and Mr. Poyser appeared for the appellant; Mr. Ivory and Mr. Daldy for the respondent. The appellant was Major George Paynter; the respondent was the district surveyor of the district of St. George's, Hanover Square North. The case was stated on an appeal to the magistrate from a notice of objection served by the district surveyor under section 150 of the Act. The appellant had served a building notice under section 145 on the district surveyor, and had annexed thereto the plans and sections of the new buildings which he proposed to erect on the site of Nos. 12 and 13, Grafton Street. These plans showed that the new buildings would not cover any ground that was uncovered before, but the arrangement of the upper floors was such that a certain amount of the old existing air space would be occupied by the new buildings, which were to be higher and to contain more cubic feet than the old. The magistrate found that the plans of the proposed new buildings did deviate in certain respects, and particularly in regard to the height, from the plans of the old buildings, and he held that the word "deviate" in section 43 (2) applied not only to the ground covered by the old buildings, but also to that of the buildings in respect to height and width and depth on the several floors, and he therefore affirmed the surveyor's objection.

The London Building Act, 1894 (57 and 58 Vict., cap. ccciii.), section 43 is as follows:—"When any person intends to erect a domestic building . . . abutting upon a street on the site of domestic buildings existing at the commencement of this Act, (1) It shall be lawful for such person, before commencing to erect the intended domestic building, to cause to be prepared plans showing the extent of the previously existing domestic building in its

several parts . . . and to cause such plans to be submitted to the district surveyor, who shall (if reasonably satisfied with the evidence of their accuracy) certify the same under his name, and such certificate shall be taken to be conclusive evidence of the correctness of the plans. Such person may then erect the intended domestic building, but so that no more land shall be occupied by the newly-erected building than was occupied by the previously existing domestic building as so certified. If such person fail to submit such plans, . . . and the district surveyor, or the tribunal of appeal, refuse to certify the accuracy of the same, such person shall on rebuilding be bound by the preceding provisions of this part of this Act. (2) If a person erecting the intended domestic building shall desire to deviate in any respect from the plan or plans certified by the district surveyor, it shall be lawful for him to apply to the Council, who shall sanction such deviation on such conditions as they may think fit."

Mr. Macmorran said that the magistrate was wrong, and contended that the owner was within his rights so long as he covered no more or different ground with the new buildings than the old buildings covered. He did not argue that section 43 gave an unqualified right to rebuild. It was only intended to give the rebuilder dispensation for the requirements of section 41 (2) as to amount of air space to be left for the benefit of the neighbouring houses. The "plan" referred to in the section meant only a ground plan. He referred to section 47, and said that that would apply. The gist of the difficulty was this—that the appellant said that he could build on the old area to any height subject to section 47. The County Council, on the other hand, said that not only the ground area must be the same, but the cubic contents.—Mr. Ivory, on behalf of the district surveyor, pointed out that Part V. of the Act, in which part this group of sections was to be found, was headed, "Open spaces about buildings and height of buildings." The Court supported the magistrate's decision.—Mr. Justice Wills said he had in this case no doubt, All depended on what was meant by "the plans showing the extent of the previous existing domestic building in its several parts" in section 41 (1). It would be the most extraordinary synonym for ground plans possible. It was clear that a complete set of plans was intended. If a person chose to rebuild an old

house exactly as it was, he might get the protection of this section. The cardinal condition of the section was that no ground previously uncovered should be covered. But if a person desired to deviate in any respect, and not in one respect only, then he was subject to the jurisdiction of the County Council. The general purview of the Act was the limitation of private rights over property for the general good. If the building owner desired to alter his old buildings, he must submit to the discretionary sanction of the County Council.—Mr. Justice Kennedy concurred.

Trade and Craft.

MESSRS. JAMES GRAY AND SON, EDINBURGH.

This firm of general and furnishing iron-mongers, whose business premises are at 85, George Street, Edinburgh, send a well-prepared catalogue of their goods. Of ranges and stoves may be mentioned, as embracing the latest improvements, the heavy "Al Simplex" patent convertible close or open ranges, the "Suburban" and "Villa" ditto, the "Portdownie" self-setting ditto, the "Artisan" self-acting and self-setting open fire range, cottage ranges, mantel registers, the patent "Simplex" register stoves, &c., all of a design and cost suitable for houses from the mansion type to a cottage. Tile kerbs or fenders are illustrated in interesting variety. The firm direct attention to their system of hot water circulating apparatus, for giving a constant supply of hot water to the scullery, bath, and lavatory, and for other purposes. They recommend the system as being superior to the ordinary methods of supply from a kitchen range, theirs being furnished from a hot water cylindrical tank, and it is stated that the "water heats more rapidly and regularly; the boiler can never be drawn empty; and a ball cock cistern is entirely dispensed with;" also that there is greater "convenience for cleaning boiler and cistern," and that the system is one of "absolute freedom from danger." The firm send workmen to any part of Great Britain to execute orders for this system. Household requisites of all descriptions are amongst the furnishing ironmongery supplied by Messrs. Gray and Son, who also make a feature of tinsmith work and repairs.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
May 21	Annan, Scotland—Erection of Slaughter House...	Burgh Commission ...	A. Tweedie, Surveyor, Lady-street, Annan.
" 21	Draperstown, Londonderry—Erection of Church ...	Rev. P. Grant ...	E. J. Toye, Architect, Strand, Derry.
" 21	Berwick—Erection of Houses ...	R. J. Atkinson ...	R. J. Atkinson, Parade View, Berwick.
" 21	Earlestown, Lancs.—Erection of Mortuary ...	Newton-in-Makerfield Urban Dist. Council	Surveyor, Town Hall, Earlestown.
" 21	Kingswood, Bristol—Erection of Two Shops ...	Guardians ...	H. M. Bennett, 36, Corn-street, Bristol.
" 21	Omagh—Workhouse Alterations, &c. ...	Asylum Committee ...	W. Cathcart, Clerk, Poor Law Office, Omagh.
" 21	Wakefield—Erection of Boiler House, &c. ...	Corporation ...	J. V. Edwards, County Surveyor, Wakefield.
" 23	Wakefield—Erection of Engine House, &c. ...	School Board ...	R. Porter, City Engineer, Town Hall, Wakefield.
" 23	East Ham—Erection of Offices, &c. ...	School Board ...	R. L. Curtis, 120, London-wall, Moorgate-street, E.C.
" 23	Hastings—Additions, &c., to School ...	School Board ...	Elworthy and Son, Architects, London-road, St. Leonard's.
" 23	Leeds—Erection of Ten Dwelling Houses ...	F. A. Cliff ...	Engineer, Sanitary Areas Dept., Municipal-bldgs., Leeds.
" 23	Leeds—Hotel Alterations, &c. ...	Bainbridge and Co. ...	T. Winn, 92, Albion-street, Leeds.
" 23	Leeds—Erection of Warehouse ...	... ..	T. Winn, 92, Albion-street, Leeds.
" 23	Leeds—Erection of Factory ...	... ..	P. Robinson, 72, Albion-street, Leeds.
" 23	London, S.E.—Rebuilding Church ...	District Managers ...	W. J. H. Leverton, 10, Lancaster-place, Strand, W.C.
" 23	London, W.—Repairs, &c., to Asylum ...	Urban District Council ...	W. S. Cross and Kekwick, 18, Outer Temple, Strand, W.C.
" 23	Stockton-on-Tees—Erection of School, &c. ...	Horse and Dog Show ...	W. H. Linton, 13, Exchange, Stockton-on-Tees.
" 23	Uxbridge—Erection of House, &c. ...	London Burial Board ...	W. L. Eves, 54, High-street, Uxbridge.
" 23	Darlington—Erection of Stands, &c. ...	Corporation ...	C. Coates, 6, Arden-street, Darlington.
" 24	Ilford, Essex—Cemetery Works ...	Corporation ...	Corporation Engineer, Guildhall.
" 24	Leicester—Superstructure of Asylum Buildings ...	Corporation ...	G. T. Hine, 35, Parliament-street, W.
" 24	Bardon, Cork—Additions to Convent ...	Corporation ...	M. A. Hennessy, 74, South-mall, Cork.
" 24	Huddersfield—Construction of Brick Culvert ...	Lancs. and Yorks. Railway Co. ...	Borough Surveyor, Town Hall, Huddersfield.
" 24	Manchester—Erection of Engine Shed, &c. ...	Corporation ...	Engineer's Office, Hunt's Bank, Manchester.
" 24	Southampton—Erection of Convenience ...	School Board ...	W. B. G. Bennett, Municipal Offices, Southampton.
" 24	South Stoke, Oxon.—Erection of Schools, &c. ...	Admiralty ...	S. Johns, Architect, St. Mary's-street, Wallingford.
" 24	Pennan, Aberdeenshire—Erection of Coastguard Bldgs. ...	Corporation ...	Works' Department, Northumberland-avenue, W.C.
" 24	London—Repairing and Repointing Walls, &c. ...	Guardians ...	The Engineer, Guildhall, E.C.
" 25	Farnham—Erection of Infirmary ...	Health Committee ...	Friend and Lloyd, Grosvenor-road, Aldershot.
" 25	St. Helens, Lancs.—Erection of Destructor Shed ...	Commissioners H. M. Works ...	Geo. J. C. Broom, Borough Engineer, St. Helens.
" 25	Huddersfield—Erection of Surgery, &c. ...	School Board ...	J. Kirk and Sons, Architects, Huddersfield.
" 25	Guildford—Enlarging Post Office ...	Guardians ...	Postmaster, Guildford.
" 25	Ugborough, Devon—Enlargement of School ...	Corporation ...	—Phillips, The Schools, Ugborough.
" 25	Newport, Mon.—Additions and Alterations to Workhouse ...	Windy Nook Co-operative Soc. Ltd. ...	B. Lawrence and Son, Dock Street, Newport.
" 26	Darwen, Lancs.—Erection of Electricity Works, &c. ...	Corporation ...	Borough Engineer, Darwen.
" 27	Felling—Erection of Twelve Cottages ...	Corporation's Gas Commissioners ...	H. Miller, A.M.I.C.E., Wesley-terrace, Felling.
" 28	Brampton, Cumberland—Erection of Reading-room, &c. ...	Cemetery Committee ...	H. Scorer, Naworth Estate Office, Brampton.
" 30	Edinburgh—Pulling Down Chimney ...	Guardians ...	W. R. Herring, Gasworks, New Street, Edinburgh.
" 30	Leeds—Erection of Twelve Houses, &c. ...	... ..	T. Winn, 92, Albion-street, Leeds.
" 31	Warrington—Erection of Greenhouse ...	... ..	T. Longdin, Borough Engineer, Town Hall, Warrington.
June 1	Alverstoke, Hants.—Enlargement of Workhouse ...	... ..	H. F. A. Smith, Architect, Star-chambers, Gosport.
" 1	Ripponden, Yorks.—Erection of Club ...	... ..	C. F. L. Horsfall and Son, Lord-street-chambers Halifax.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
June 1	Clonakenny, near Roscrea, Ireland—Church	Rev. M. B. Curry	W. G. Doolin, Architect, Dawson-chambers, Dublin.
Aug. 31	Guyaquil—Construction of Custom House	Ecuadorian Government	Commercial Department, Foreign Office, S.W.
Oct. 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.	J. Lipsey and Co.	Brazilian Legation, London.
No date.	Belfast—Erection of Offices	Dobbin, Ogilvie and Co. Ltd.	W. J. Moore, Whitehall buildings, Ann-street, Belfast.
"	Cork—Erection of Houses and Shops		A. Hill, 22, George's-street, Cork.
"	Hunslet, Leeds—Erection of Fourteen Cottages, &c.		J. E. Leak, Architect, Hunslet.
"	Keighley—Fitting-up Show Field	Agricultural Society	F. S. Pearson, Secretary, Old Bank-chambers, Keighley.
"	King's Lynn—Erection of Shop, &c.	Mrs. Gates	L. F. Eagleton, Bank-chambers, King's Lynn.
"	Leeds—Rebuilding Culvert		Martin and Fenwick, 1, Park-place, Leeds.
"	Lisburn, Ireland—Erection of Fifty Houses		J. Allen, Solicitor, Lisburn.
"	Ulverston—Erection of Warehouse	S. Pollit and Co.	Settle and Farmer, Architects, County-square, Ulverston.
"	Sheffield—Schools	School Board	Holmes and Watson, Architects, Church-street, Sheffield.
"	Mexborough—Additions to Schools	School Board	G. White, Architect, Mexborough.
"	Hoylake—Station Buildings	Wirral Railway Co.	W. M. Law, 3, Lord-street, Liverpool.
"	Newbold—Additions to Chapel		W. C. Jackson, 29, Knifesmith-gate, Chesterfield.
"	Holbeach Marsh, Lincs.—Chapel		J. Curtis, Tea Mart, Holbeach.
"	Middlesbrough—Rebuilding Hotel	Bass and Co.	J. M. Bottomley, 28, Albion-road, Middlesbrough.
"	London—Erection of Warehouse	J. Cohen and Co.	C. H. Flack, 9, Bedford-road, W.C.
"	Leicester—Superstructure of Asylum Buildings	Borough Asylum	G. T. Hine, 35, Parliament-street, S.W.
ENGINEERING—			
May 21	Manchester—Erection of Hydraulic Pump	Waterworks Company	Secretary, Waterworks Office, Town Hall, Manchester.
" 21	Hanley, Staffs.—Sinking Shaft	Shelton Iron, Steel, & Coal Co. Ltd.	J. J. Prest, Company's Engineer, Stoke-upon-Trent.
" 21	Lasswade, Scotland—Formation of Well, &c.	Water Committee	R. Little, 74, George-street, Edinburgh.
" 23	Paisley—Construction of Railway	Paisley & Barrhead District Railway Co.	Formans and McCall, 160, Hope-street, Glasgow.
" 23	Dublin—Supply of Electric Mains, &c.	Corporation	City Engineer, City Hall, Dublin.
" 23	West Calder, Scotland—Building Walls, &c.	Midlothian County Council	J. Tait, C.E., Wishaw.
" 25	Christiana—Two Cast-iron Lighthouses	Norwegian Supt. of Lighthouses	Foreign Office, London, S.W.
" 25	Basingstoke—Supply of Water Van	Works Committee	G. Fitton, Borough Surveyor, Town Hall, Basingstoke.
" 25	Shoreditch, E.C.—Gangway at Workhouse	Guardians	G. J. Smith, 17a, Great George-street, S.W.
" 27	Sophia, Bulgaria—Construction of Port		Ministry of Public Works at Sophia.
" 27	Hull—Construction of Roof	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 28	Cirencester—Well Sinking, &c.	Rural District Council	F. Reiman, Newport-street, Swindon.
" 28	Sunderland—Erection of Lattice Girders, &c.	River Wear Commissioners	H. H. Wake, Office, Commissioners' Quay, Sunderland.
" 28	Cowes—Supply of Pumping Machinery	Urban District Council	J. W. Webster, Engineer to Council, High-street, Cowes.
" 28	Sandbach—Depositing Tanks at Pumping Station	Urban District Council	W. Wyatt, Bryndwr, All Saints, Shrewsbury.
" 30	Frimley, Surrey—Supply of Lamps	Urban District Council	W. J. Hodgson, Surveyor to Council, Frimley.
" 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
June 4	Eastbourne—Gasholder Tank	Gas Company	H. E. Jones, Engineer, Harford-street, Stepney.
" 6	Wicklow—Harbour Improvements	Harbour Commissioners	Sir A. Rendel, 8, Great George-street, Westminster, S.W.
July 4	Radomir, Bulgaria—Construction of Railway	Ministry of Public Works	Commercial Department, Foreign Office.
" 7	Leicester—Supply and Fixing of Grids	Gas and Electric Lighting Committee	A. Colson, Engineer, Millstone-lane, Leicester.
No date.	London, W.—Supply of Baking Ovens	County Asylum	Resident Engineer at Asylum, Hanwell.
"	Rochdale—Electric Lighting	Union Guardians	E. A. Leach, Clerk, Union Offices, Townhead, Rochdale.
"	Manchester—Supply of Two Lifts	Corporation	—, Eison, Town Hall Steward, Manchester.
IRON AND STEEL—			
May 23	London, N.—Supply of Tree Gratings	Hornsey Urban District Council	E. J. Lovegrove, Offices, Southwood-lane, Highgate, N.
" 25	London, E.C.—Supply of Railway Stoves	East Indian Railway Co.	Offices, Nicholas-lane, London, E.C.
" 25	London, E.C.—Supply of Underframes, &c.	Bengal-Nagpur Railway Co. Limited	Office, 132, Gresham House, Old Broad-street, E.C.
" 26	Valetta, Malta—Cast-iron Pipes, &c.	Director of Contracts	Crown Agents for the Colonies, Downing-street, S.W.
" 30	Edinburgh—Supply of Pipes	Edinburgh & Leith Gas Commissioners	W. R. Herring, Engineer, New-st. Gasworks, Edinburgh.
" 31	Buxton—Supply of Cast-iron Pipes	Urban District Council	W. H. Grieves, Surveyor, Town Hall, Buxton.
No date.	Carlisle—Supply of Iron Fencing	R. Harrison and Son	J. Graham, Architect, Bank-street, Carlisle.
PAINTING AND PLUMBING—			
May 21	Tanfield Lea, Durham—Painting, &c., Chapel		H. Mudd, 5, William-street, Tanfield Lea.
" 23	Rochester—Painting Bridge	Wardens and Assistants	Arnold, Baker, and Day, The Precinct, Rochester.
" 23	London—Repairs and Painting	Central London Sick Asylum	W. S. Cross and Kekwick, 18, Outer Temple, E.C.
" 24	Maidstone—Painting, &c., Sessions House	Standing Joint Committee	County Surveyor, 86, Week-street, Maidstone.
" 29	Warrington—Painting Shops, &c.	Estates and Cemetery Committees	T. Longdin, Borough Surveyor, Town Hall, Warrington.
" 30	Watergrove, Rochdale—Painting and Decorating Church		G. E. Cryer, Church-terrace, Wardle.
No date.	Woolwich—Painting and Whitewashing	War Department	Royal Engineer Office, Mill Lane, Woolwich.
ROADS—			
May 21	Cuckfield, Sussex—Supply of Broken Granite, &c.	Urban District Council	E. Waugh, Clerk, Hayward's Heath.
" 23	Bury, Lancs.—Street Works	Sewering, Paving, & Streets Committee	Borough Engineer, Bank-street, Bury.
" 23	Goole—Carting of Stone	Rural District Council	— Flewies, Surveyor of Highways, Rawcliffe.
" 23	Selby—Supply of Granite, Whinstone, &c.	Rural District Council	E. Townend, 1, Abbey-place, Selby.
" 23	London, N.—Paving, Sewering, Levelling, &c.	Urban District Council	E. J. Lovegrove, Offices, Southwood-lane, Highgate, N.
" 24	Desborough, Northants.—Supply of Broken Granite	Urban District Council	W. T. Streather, Surveyor, Desborough, Northants.
" 24	Reigate—Supply of Materials	Council	W. H. Prescott, Borough Surveyor, Market Hall, Redhill.
" 25	London, E.—Supply of Granite Spalls	West Ham Union Guardians	F. E. Hilleary, Guardians' Offices, Union-rd., Leytonstone, E.
" 25	Thame—Granite and Granite Chippings	Urban District Council	J. Towers, Chinnor-road, Thame.
" 26	Sunbury-on-Thames—Supply of Granite, &c.	Urban District Council	H. F. Coates, Surveyor, Sunbury-on-Thames.
" 31	Mexborough, Yorks.—Street Works	Urban District Council	G. F. Carter, Surveyor, Council Offices, Mexborough.
" 31	Shrewsbury—Supply of Kerbing and Flagging	Improvement Committee	W. C. Eddowes, Old Market Hall, The Square, Shrewsbury.
" 31	Walton-on-Naze, Essex—Road Works	Urban District Council	H. W. Gladwell, Surveyor, High-street, Walton-on-Naze.
June 11	Slough—Making-up Streets	Urban District Council	Surveyor, 11, Mackenzie-street, Slough.
No date.	Kirby Muxloe—New Roads		Miles and Beasley, Surveyors, Friar-lane, Leicester.
SANITARY—			
May 21	Hunslet, Leeds—Scavenging	Rural District Council	W. B. Pindar, Clerk, Leek-street, Hunslet.
" 21	Worth, Sussex—Laying Drains, &c.	East Essex County Council	H. Card, County Surveyor, County Hall, Lewes.
" 23	Clayton-le-Moors, Lancs.—Sewers	Urban District Council	A. Dodgson, Surveyor, Clayton-le-Moors.
" 24	Bangor, Ireland—Construction of Outfall Sewer	Joint Burial Board	T. Morgan, Secretary, Town Commissioner's Office, Bangor.
" 24	Knutsford—Sewage Works	Urban District Council	W. J. Downes, Surveyor, Knutsford.
" 24	Oadby, near Leicester—Sewerage Works	Blaby Rural District Council	H. Walker, Newcastle-chambers, Angel-row, Nottingham.
" 25	Greenwich, S.E.—Pipe Sewer	Board of Works	Office, 141, Greenwich-road, S.E.
TIMBER—			
May 21	Londonderry—Supply of Wood-paving Blocks	Bridge Commissioners	J. Stewart, 26, Shipquay-street, Londonderry.
" 23	London, W.C.—Supply of Firewood	School Board	Works Dept., Board Offices, Victoria Embankment, W.C.
" 24	Eton—Deals and Battens	Union Guardians	The Clerk, Slough, Bucks.
No date.	Queensbury, Bradford—Supply of Benches		S. Mann, 6, Stone-street, Mountain, Queensbury, Bradford.
"	Ryhope, near Sunderland—Supply of Timber	Coal Company Limited	Offices, Ryhope Colliery, near Sunderland.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
June 1	Wallsend—Laying-out Park	£50, £20	Wallsend Urban District Council.
" 7	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 24	East Ham—Offices, Fire Station, and Public Baths	£105, £53 10s.	Urban District Council.
July 1	West Bangor, N.B.—Asylum Buildings		Edinburgh District Lunacy Board.
" 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phoebe A. Hearst Fund; represented in England by the R.L.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the architect or Surveyor for the work.

ARNES.—For building and finishing the south aisle, organ chamber, and vestries of the Church of St. Michael and All Angels, Barnes, Surrey. Messrs. Tress and Co., architects, 37, Queen-street, City, E.C.4.—
Tress and Co. £1,840 0 0 S. W. Arnes and Co. £1,751 6 6
Colls and Sons 1,683 0 0
Arthur Sale 1,790 0 0
Adamson and Sons 1,634 0 0
JOVEY TRACEY.—Work to be done at Bovey Tracey, the Bovey Pottery Company Limited. Mr. W. G. Jovey, architect, Paignton. Quantities by Mr. Vincent Arnold Brown, of Paignton.—
Jovey £2,925 0 0 Webber and Sons £1,955 10 10
Bovey 2,490 0 0 E. Westlake 1,939 10 10
Pillar 1,900 10 10
S. Mardon 2,348 0 0 Leally 1,900 0 0
Yeo 2,685 0 0 M. Bridgman, 1,782 0 0
Paignton * Accepted.

MOBNE (Cornwall).—For the erection of United Methodist Free Church, Barrister. Mr. Sampson Hill, architect, Green-lane, Redruth.—
Hill £605 0 0 J. Berryman 2,630 0 0
W. C. Hodge 616 0 0
Mills and Moffat 647 0 0
Jno. White, Camborne* 560 0 0
Moyle 630 0 0 * Accepted.
DERBY (Leicestershire).—For the rebuilding of the clock tower, for Messrs. Brunt, Bucknall and Co., Messrs. Miles and Beasley, architects, Friar-lane, Derby. Quantities by architect.—
Brunt and Beasley £841 0 0 Urban Gurney 2,753 0 0
Langton and Son* 738 0 0 * Accepted.

RNHAM.—For the erection of four cottages at South Farnham, for Mrs. Kelly. Mr. J. Alfred Eggar, architect, 11, West-street, Farnham.—
Eggar £1,320 0 0 Crosby and Co.* £1,198 0 0
Crosby and Co.* * Accepted.

NDON.—For the erection of three cottages, Markfield, Leicestershire. Messrs. Crawfords, architects.—
Crawfords £819 0 0 W. Lawrence, Waltham 2,738 0 0
Abbey (accepted) * Accepted.

NDON.—For six shops and stables, Romford-road, Romford, for Mr. J. Tyrrell. Mr. R. Banks Martin, architect, 103, Plashet-grove, East Ham, and East-street, Romford.—
Martin £5,550 0 0 C. Lawrence (accepted) £5,200 0 0
NDON.—For five houses, Barking-road, East Ham, for J. Batt. Mr. R. Banks Martin, architect, 103, Plashet-grove, East Ham.—
Martin £2,777 0 0 C. Lawrence 2,441 0 0
B. Selby 2,740 0 0
C. Manning 2,693 0 0
Goodey 2,500 0 0 A. Timson (accepted) 2,650 0 0
Horlock 2,475 0 0

NDON.—For five houses, Beckton-road, Canning, for Mr. H. Drake. Mr. R. Banks-Martin, architect, 103, Plashet-grove, East Ham, and East-street, Barking.—
Martin £1,900 0 0 C. Lawrence £1,600 0 0
C. Manning (accepted) 1,445 0 0
NDON.—For constructing the foundations of the Head of the Metropolitan Asylums Board, Victoria Embankment. Mr. Edwin T. Hall, architect, 57, Moor-gate, E.C.4.—
Hall £6,871 0 0 Spencer, Santo and Co. £4,993 0 0
Foster and Dicksee 4,750 0 0
Shillito and Son 5,200 0 0 Henry Lovatt 4,535 0 0
Leslie and Co.* 4,386 0 0 * Accepted.

NDON.—For the erection of printing premises, Cross court, for Mr. G. J. Mathieson. Messrs. Barnes, Ford, and Griffin, architects.—
Barnes, Ford, and Griffin £7,340 0 0 Lascelles and Co. £6,925 0 0
Way Bros. 7,140 0 0 W. Downs 6,799 0 0
Bartley, Sons & Holness 6,687 0 0
Falkner and Sons* 6,453 0 0
H. L. Holloway 6,394 0 0
Holloway 6,397 0 0 * Accepted.

NDON.—For addition to premises, City-road, for Messrs. Betts and Co., Ltd. Messrs. Barnes-Williams, Ford, Griffin, architects.—
Barnes-Williams, Ford, Griffin £3,010 0 0 Lawrence and Sons* £2,275 0 0
Lawrence and Sons 2,693 0 0 * Accepted.
NDON.—For alterations, &c., at No. 21, Harrington-road, South Kensington, S.W., for Mr. Henry Bullingham. Edward Monson, architect, Acton-vale, W., and 22, High-street, Adelphi, W.C.—
Monson £1,320 0 0 Oldrey and Sons, Kilburn, N.W.* £945 0 0
Oldrey and Sons* 1,076 0 0 * Accepted.

NDON.—For alterations, additions, and fittings at the Isle Tavern public-house, Mostyn-road, Bow, E. E. Eldridge, Mr. Fred. A. Ashton, architect, 177, Strand-road, Stratford, E.—
Ashton £1,500 0 0 Fittings. Total. £2,440 0 0
Williams and Sons 1,455 0 0
Wall and Co. 1,390 0 0
E. Symes 1,390 0 0
H. Cocks (accepted) 1,393 0 0
Godson and Sons 1,076 0 0
Oldrey and Sons* 945 0 0 * Accepted.

NDON.—For rebuilding the boys' offices, and two offices for extending and refitting the infants' offices in play-lane; reconstructing the infants' and girls' offices on roof-tops; erecting covered playground for boys; erecting the schoolkeepers' house; providing drainage and enclosing, drawing, and tar-paving additional part of the Nichol-street School, for the London School Board. Mr. T. J. Bailey, architect.—
Bailey £2,492 9 2 G. Parker 2,428 0 0
Lathey Bros. 4,379 0 0
Grover and Son 4,347 0 0
W. Akers and Co. 4,271 0 0
E. Lawrence and Sons 4,217 0 0
E. Trigg* 4,119 0 0 * Accepted.

NDON.—For building new school ("Paragon")—boys, girls, 352; infants, 407; total, 1,111; with schoolkeeper's cookery, laundry, and manual training centres, for London School Board. Mr. T. J. Bailey, architect.—
Bailey £29,776 0 0 J. and M. Patrick 226,898 0 0
R. A. Yerbury & Sons 26,445 0 0
Lathey Bros. 26,332 0 0
Treasure and Son 25,788 0 0
S. Hart 25,749 0 0
Stimpson and Son* 24,500 0 0 * Recommended for acceptance.

CHAM.—For pulling down and rebuilding the

"Buck's Head," Mitcham, for Hoares Brewery Company. Messrs. Perry and Read, architects, John-street, Adelphi, Strand. Quantities supplied.—
Perry and Read £8,422 0 0 Simpson and Cove £8,105 0 0
Clarke and Bracey 8,295 0 0 Knight and Co. 7,930 0 0
Perry and Co. 8,171 0 0

NEW BROMPTON (Kent).—For the erection of bakery, store, &c., Gillingham-road, for the New Brompton Industrial Provident Society, Limited. Mr. E. J. Hammond, architect, 111, High-street, New Brompton.—
Hammond £9,630 0 0 H. E. Phillips £7,960 0 0
E. W. Filley 7,900 0 0
C. Gray Hill 9,200 0 0 J. Saunders 7,060 14 1
General Builders 8,700 0 0 J. H. Harris 6,050 0 0
Co-op. Soc., Ltd. 8,520 0 0
W. C. Snow 8,520 0 0

NEWPORT (Mon.).—For the erection of a board-room and offices, Queen's Hill, for the Union Guardians. Messrs. Lawrence and Son, architects, Dock-street, Newport.—
Lawrence and Son £5,000 0 0 J. Linton £4,800 0 0
W. A. Linton 4,593 0 0
G. Diamond 5,227 0 0 E. C. Jordan 4,563 0 0
Gradwell and Co. 5,095 0 0 J. Moore 4,470 0 0
J. Charles 4,042 0 0 A. S. Morgan and Co. £4,399 0 0
J. D. Parfitt 4,850 0 0 Newport (accepted) * Accepted.

NOTTINGHAM.—For the erection of a semi-detached villa, Foxhall-road, Sherwood Rise. Mr. F. H. Collyer, architect, South Parade, Nottingham. Quantities by architect.—
Collyer £1,175 0 0 Kershaw & Wor- 1,034 0 0
F. Messon 1,174 0 0
Gilbert and Gab- 1,071 0 0
bitass 1,159 0 0
Cooper and Crane 1,120 0 0
J. Musson 1,118 0 0
A. G. Bell 1,108 0 0

PERTH.—For the construction of an outfall sewer near Perth Harbour, for the Burgh Commissioners. Mr. R. M. Kinlop, engineer, 12, Tay-street, Perth.—
Kinlop £1,937 15 6 D. and R. Taylor £1,737 1 7
G. Mackay and Son 1,742 0 0 Peter Girrity, Dundee* 1,484 3 3
John Ker Paton * Accepted.

RAMSGATE.—For the erection of twelve almshouses, &c., The Elms, for the Vicar and Churchwardens of St. George's parish (the trustees under the will of the late Mrs. Barber). Messrs. W. G. Osborne and Langham and Cole, joint architects, Ramsgate. Quantities by the architects.—
Osborne and Langham £5,125 0 0 W. W. Martin £4,852 0 0
J. W. Woodhall 5,075 0 0 J. Wise 4,750 0 0
J. T. May 5,004 0 0 J. H. Forwalk, Rams- 3,855 0 0
gate (accepted) * Accepted.
ROTHWELL HAIGH.—Accepted for pulling down and rebuilding the "Old Half-way House Hotel" premises, together with coach-house, stabling, and cycle sheds thereto, at Robin Hood, Rothwell Haigh, for the City Brewery Co., Limited, Leeds. Mr. Thomas Winn, architect, Leeds.—
Winn £1,000 0 0

ROTHWELL HAIGH.—Accepted for pulling down and rebuilding the "Old Half-way House Hotel" premises, together with coach-house, stabling, and cycle sheds thereto, at Robin Hood, Rothwell Haigh, for the City Brewery Co., Limited, Leeds. Mr. Thomas Winn, architect, Leeds.—
Winn £1,000 0 0
Bricklaying and Masonry.—Binks Bros., Outwood, near Wakefield.
Carpentry and Joinery.—W. A. Millard, St. Columbia-street, Leeds.
Painting and Glazing.—J. E. Bedford, Chapel Allerton, Leeds.
Plastering.—A. and S. Wheeler, Calverley, near Leeds.
Painting.—J. Snowden and Sons, Ossett.
Slating.—Jas. Season, Hunslet-road, Leeds.
Ironfoundry.—Newsome and Askham, Newsome, near Wakefield.

SHEFFIELD.—For the erection of a 100-seater, for the Standing Joint Committee. Mr. J. Somes Storey, County Surveyor, County Offices, St. Mary's Gate, Derby.—
Storey £2,676 0 0 W. Walkerdine £2,200 0 0
J. Franklin 2,540 15 0 Knowles & Son 2,199 0 0
Groom and Co. 2,351 1 6 Davison & Sons 2,175 11 8
J. H. Hirst 2,225 0 0 G. Wags, Derby 1,884 19 7
* Accepted.

SOUTHEAST-ON-SEA.—Accepted for the erection of twelve semi-detached villas, for Mr. T. H. Batstone. Mr. H. J. Stevens, architect and surveyor, 16, Craven-street, Strand, W.C.—
Stevens £5,798 0 0

TAIVISTOCK.—For additions to Kelly College. Mr. H. J. Snell, architect, 13, Courtenay-street, Plymouth. Quantities by architect.—
Snell £10,772 0 0 A. R. Lethbridge and Son £10,070 0 0
W. G. Goad 10,521 0 0 A. Andrews 9,985 0 0
P. Blowey 10,260 0 0 Lapthorn and Co. 9,436 0 0
Blackell and Shep- 10,107 0 0 J. P. Berry (accepted) 9,400 0 0
perd [All of Plymouth.]

THAMES DITTON (Surrey).—For the erection of a detached house at the corner of River-avenue and Portsmouth-avenue, for the Thames Ditton Land Development Company Limited. Messrs. Douglas Young and Co. architects.—
Young £1,584 0 0 T. Shopland £1,457 0 0
Newmans Limited 1,465 0 0 G. J. Kick 1,329 0 0
THAMES DITTON (Surrey).—For the erection of a detached house at the corner of New-road and Portsmouth-avenue, for the Thames Ditton Land Development Company Limited. Messrs. Douglas Young and Co. architects.—
Young £1,457 0 0 T. Shopland £1,457 0 0
Newmans 1,326 0 0 G. J. Kick 1,134 0 0
E. Tomkinson * Accepted.

WASHINGTON (Durham).—For the construction of sewers, near Washington Station, for the Chester-le-Street Rural District Council. Mr. Geo. Symon, surveyor, Birtley.—
Symon £770 0 0 J. Thompson £630 4 0
Tough Bros. 656 0 0 J. Carrick, Durham* 615 14 2
T. Robinson 631 14 0 A. G. Rutter & Sons 591 8 0
* Accepted.
[Surveyor's estimate, £639 5s. 2d.]

WEDNESFIELD.—For the execution of sewerage works, &c., for the Urban District Council. Mr. R. E. W. Berrington, engineer, 1, 2, and 3, Bank-buildings, Lichfield-street, Wolverhampton.—
Berrington £29,417 0 0 H. Weldon £6,414 0 0
Jas. Owens 6,399 0 0
Martin 8,904 0 0 Ford and Hudson 6,198 0 0
Geo. Law 8,600 0 0 H. Holloway, Wolver- 5,920 0 0
hampton* * Accepted.
[Engineer's estimate, £6,000.]

WOLDINGHAM.—For the erection of personage. Messrs. Barnes-Williams, Ford, and Griffin, architects.—
Barnes-Williams, Ford, and Griffin £1,561 0 0
Edwards and Medway £5,550 0 0 R. Chirgwin 1,554 0 0
Akers and Co. 1,741 0 0 Masters Bros. 1,554 0 0
Canning and Mullins 1,584 0 0 J. Luxford (accepted) 1,489 0 0

WOODFORD.—For main road improvements and tar-paving repairs, for the Woodford Urban District Council.—
Main Road Improvement Works.
Nowell Robson £1,878 9 8 Manders £1,561 18 2
Griffiths 1,736 8 10 Grounds & New- 1,508 9 0
Smart 1,735 7 4 ton 1,508 9 0
Wadery 1,625 0 0 W. & C. French, 1,461 9 9
Adams (without 1,663 9 2 Buekhurst Hill* * Accepted.
tar-paving) 1,530 18 6

Tar Paving Repairs.
Ingham £2,296 17 6 Smart £1,000 19 0
Mander 137 1 8 Grounds & Newton, 98 6 8
Constable 125 12 6 South Tottenham* * Accepted.
Bradshaw 109 0 0

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ARCHITECTURAL INSTITUTE and CIVIL SERVICE TECHNICAL EXAMINATIONS.—Preparation by correspondence, personally, or in residence. Fourteen first places.—G. A. T. MIDDLETON, 19, Craven-street, Strand, W.C.

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G. SCORER, 23, Newman-street, W.

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"Cliffe Vale" Potteries, Hanley.

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Adamant Urinal Range

INSIDE SIZES.

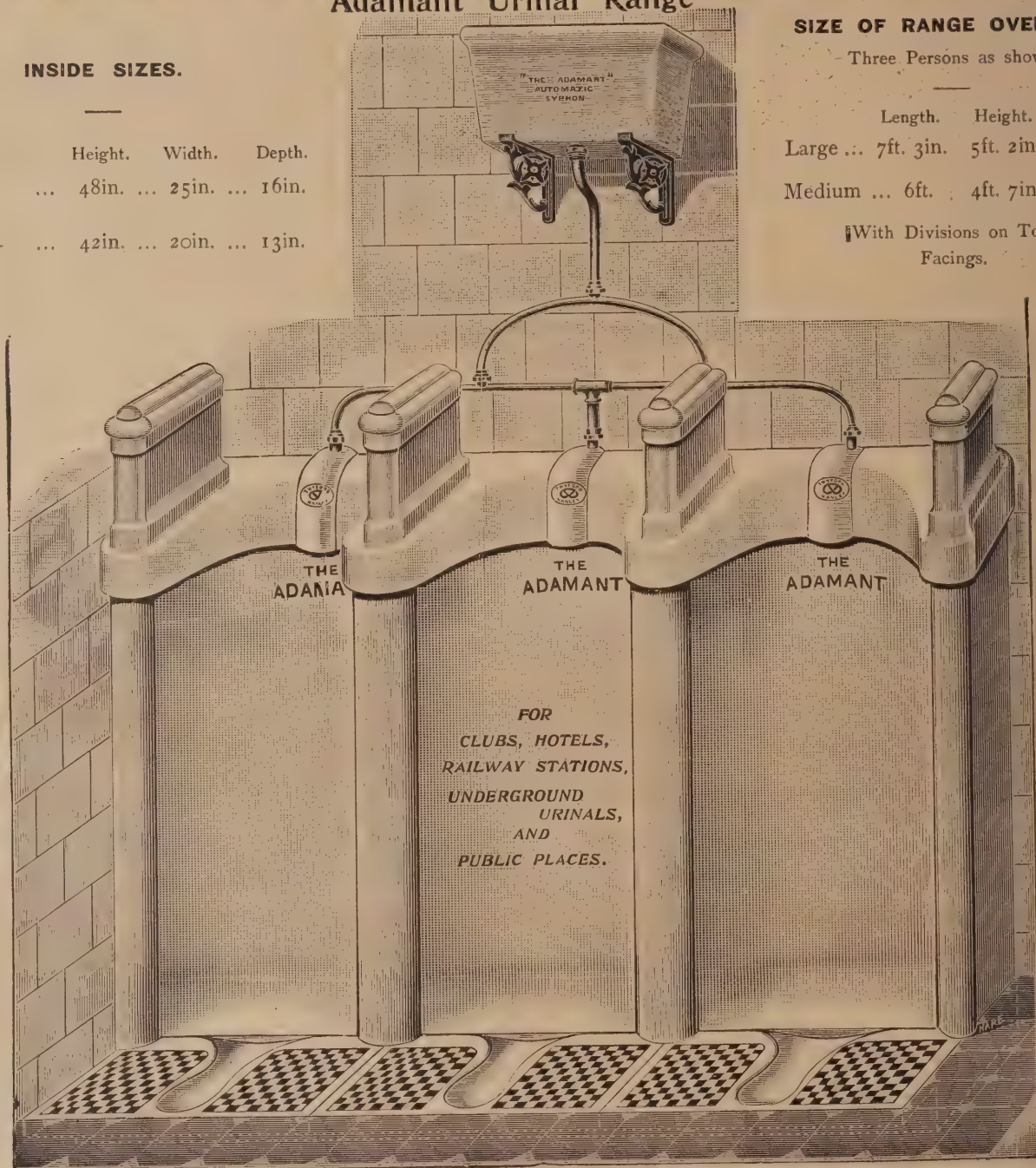
	Height.	Width.	Depth.
Large ...	48in.	25in.	16in.
Medium ...	42in.	20in.	13in.

SIZE OF RANGE OVER ALL.

Three Persons as shown,

	Length.	Height.	Depth.
Large ...	7ft. 3in.	5ft. 2in.	1ft. 7in.
Medium ...	6ft.	4ft. 7in.	1ft. 4in.

With Divisions on Top Facings.



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For Two Persons ...	£19 11 0	£14 19 0
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For Five Persons, " ...	46 7 6	34 16 0
For Six Persons, " ...	56 4 0	42 6 0

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An Architectural Causerie.

An Art or a Profession? THE other morning, on arriving at the office, one found one's predominant partner in such a state of extreme excitement as he has not contracted since the episode of the Cardiff Competition awards. Indignation was, of course, the mainspring and sustainer of his passion. One's predominant partner never becomes really excited except when his indignation is aroused. On these occasions he may pass all bounds, save those of language. He may become inflamed and even purple in countenance, his hair may rumple up, he may seem incoherent and delirious, but never has he been known to become "speechless with indignation"; language never fails him, on the contrary, his eloquence rises to such heights of invective that one has often felt obliged to close the doors which separate us from our assistant, who is really an office boy, designated "assistant" by courtesy on the strength of an incipient moustache. As one uncovered one's board on this occasion one asked one's predominant partner what on earth was the matter, and whether he knew what he looked like at that moment. It then appeared that he had found, in the current issue of a professional journal, a reprint of a circular letter which some well-established architect had been sending to solicitors about the country, advertising his qualifications and his readiness to undertake the raising of buildings "always with the best designs," and blandly offering "twenty per cent. of my commission when received" to the addressed in consideration of his placing work with him. One's predominant partner gabbled the particulars from the sheet before him, and then stopped and looked across as though he expected one to fly out into some form of violence. Seeing this one restrained one's expressions of disgust, and merely asked him what there was for him to make so much fuss about. He replied with heat to the effect that such conduct was a degradation to the Profession—it brought it into ill-repute; he said that not long ago there was just such another case of circular letters of solicitation being sent by an architect to clergymen, and he went on instancing notorious instances of advertisement among architects till one felt bored and tired of his voice, and cut in to remind him that he had no right to consider Architecture a Profession at all. One explained that as Architecture had utterly failed us as a Profession—in point of fact one drops some £35 a year in the practice, and one's predominant partner, as having a larger share in the business, about £75 per annum—as it had utterly failed us as a Profession, one explained, we were bound to consider it an Art. At this one's predominant partner evinced symptoms as of having a great deal to say, but one had listened to him quite long enough, and one proceeded to tell him that one quite understood his violent animosity towards these advertising architects and their methods. If he was an artist, as he claimed himself to be, his Art would suffice him and he would have no care or interest in these humbler advertising insects crawling in the dust below him. If, as his everlasting talk implied, he was truly

convinced that Architecture had the dignity of a Profession, he could never so far demean the pomposity he assumed to his employment as to get violent, and use language unfit for the ears of a full-grown office boy, because a struggling practitioner—a quack, had stolen an advantage of him. One told one's predominant partner that he was angry because he was unsuccessful himself, and because there was no sort of self-advertisement he would not lend himself to if he could reconcile his pride and his ideals to the process. One told him his annoyance was entirely personal pique, and nothing to do with the dignity of the Profession or the truth of the Art. One concluded by explain-

for these outbursts of indignation and irritation were not only transparently sordid, but very undignified. As one concluded, one had retrieved one's hat and was at the door; but, as one fled downstairs upon a matter of business that would take half the day, one was conscious of the wrecking of one's office stool. B. C.

The Genius of Paris.

To lovers of Paris, the work of a man of genius like Meryon must ever appeal very strongly. More accurate drawings there might be, perhaps, and on the



GATE OF JUSTICE: THE ALHAMBRA, GRANADA. FROM A WASH DRAWING BY W. H. SETH-SMITH.

ing to one's predominant partner that it was very easy to have high and aspiring ideals when one was paid well for them, and that he was no better than the average of common humanity in being soured and disgusted because he could not fastidiously follow his own ideals, and live up to his pet principles, and at the same time make a fortune. One reminded one's partner that he was getting on in years, and that the motives and causes

other hand, vaguer impressions; but between these extremes stands the etcher with whom we are here concerned, whose eye was a sailor's eye, and who, when confined to Paris, must have found his vista bounded as it never had been before. But Art without limits of some sort is a thing beyond understanding, and the praise that is given is always for something done, not something vaguely imagined. "Stone walls do not a

prison make, nor iron bars a cage"—the author unconsciously spoke the last word about the nine muses. Let one such as Meryon be "cabin'd, cribb'd, and confin'd" in the city: where we see nothing but bricks and mortar with the smoke and mess pertaining thereto, the artist sees shadow and line. In tone-land between the extremes is the chiaroscuroist's playground. That Meryon was happy enough, at least while he worked, there is proof in nearly all of his etchings, yet his life was one of the saddest. He inherited a taint of disease from his mother, which affected his sight in some way, and blighted his hope of painting, but by virtue of this limitation is he known to the world for his etchings, and as to his subsequent madness, it was something which had to be. It will nearly always be found that the artist inherits his temperament, and if added to that is disease, the combination must prove irresistible. The writer has taken perhaps a rather roundabout way of saying that Mr. Gutekunst's exhibition in King Street is one that should not be missed. There has been nothing so complete of its kind since the year 1879, when the Burlington Fine Arts Club organised its exhibition. In this, although small, there are features especially interesting. Instance: a number of drawings of vessels which help to explain how it was that Meryon's earliest master was Zee-mann, the Dutchman of whose etchings Mr. Gutekunst has some examples. Instance also the wonderful portraits by Bracquemart and Flameng—the former, if mere craft is in question, a more accomplished etcher than Meryon. In support of this opinion, we might be permitted to quote Mr. Hamerton, but space for quotation is not provided. The most celebrated of this artist's etchings are known as the "Paris Set," and concerning their present value the reader should consult Mr. Wedmore, who owns a considerable number, and those in the rarest states. What Meryon thought them to be worth we have no means of knowing, but it has been ascertained that he asked only thirty francs for the set of fifteen. There is solace for the soul even when the claims of the body are pressing in the praise of the few who knew the cost of art work to the worker, and amongst genuine admirers were Baudelaire and Victor Hugo. What was said by the latter will convey more to the reader than any discourse occasioned by the present exhibition. "These etchings are magnificent things. We must not allow this splendid imagination to be wasted in the struggle in which it is engaged with the Infinite while studying Nature or Paris. Strengthen him by all the encouragements possible. The breath of the universe moves in his works, and makes his etchings more than pictures—visions." The etchings to which he refers were completed in 1853, and represent the man at his best. "He translated," says M. Burty, "with that clear view which French genius always claims, the poetry, mysterious and grand, of that old Paris which the children of the Second Empire saw ruthlessly disfigured and destroyed. Under his needle the Architecture, which had hitherto only been rendered by the severe tracings of the architect, or by the summary in water-colours of the decorator, became what a landscape does under the pencil of the master of his Art—namely, a poem. He, as it were, borrowed of the reality only its features; he preserved the characteristic details of the construction, and affixed to them the reflections of his melancholy or the secrets of his enthusiastic mind. Without sensibly modifying the appearance of the building, he invested it with both social and historical connections; as, for instance, in his etching of the building of the Morgue, which, without in reality altering, he drew in the likeness of a tomb.

Thus his work has a two-fold value. It takes its proper place in the portfolios of the collectors of historical documents, and adorns the walls of the studios." It may be remarked, in conclusion, that Meryon anticipated the writer who lately expressed his opinion that things like the Boadicea Monument should be made of some perishable stuff, so that the space they require might be declared vacant in time. M. Burty reports that he spoke of this matter as follows:—"At certain dates every work of Art that is not, without a doubt, worthy of preservation should be destroyed. Of sculpture, mortar should be made by means of an enormous crusher. Of paintings, they should make tarpaulins. The artists should be the first to lend themselves to such a scheme, for whosoever has made a second-rate statue should be enchanted to see it replaced by a better."

E. R.

THE HISTORY OF STAINED GLASS.

FEW arts have had a history as interesting as that of stained glass; and there is probably no other, excepting Architecture, of which it is so necessary to know the past if we would properly appreciate the present. With all the brilliant progress made in special directions in our own age and country, we must still refer for guidance and instruction to the practice of mediæval artists. Quite recently, indeed, it would have been difficult to illustrate the essential principles of the art from modern examples. But, thanks partly to the general advance in taste, still more to the sincere efforts of a few artists, it is possible now, to point to designs which are as logical as those of the Middle Ages, while modern in spirit, and adapted to modern requirements.

THE OLDEST WINDOW GLASS

of which we know belongs to the fourth century A.D. It is thick, uneven, and slightly greenish in colour. Leaded glass of various tones, forming patterns, was used in Roman churches of the ninth century. Step by step other colours were added, and this led to the invention of windows which were veritable mosaics. To these were applied, in the eleventh century, outlines and shadows in black or brown enamel. The artist in stained glass had then at his disposal all the essential means for the production of effective figure work. Curious details of the practice of the ancient workers in stained glass are given in a celebrated treatise by the monk Theophilus. The glazier's diamond was unknown, and a hot iron was used for cutting—or, rather, fracturing—the glass. A temporary kiln was built for each lot of glass to be fired. The old makers had but few colours. Their fine dark blue was at first made with fragments of antique Roman glass vessels. They had copper and iron reds, a good dull yellow, a purple from manganese, and, somewhat later, a green, probably from oxide of chromium. None of these colours were perfectly even, which was an advantage, for each piece of glass had some variety and play of colour. They did not know how to make glass in large sheets, which also was in their favour, for such strong colours should not be used over large spaces.

A GENERAL HARMONIOUS TONE

is to be got in glass, as it is in impressionist painting, by making a mosaic of bright colours in small spaces. In another way their inability to produce large sheets of glass had no less happy effect. It necessitated the multiplication of lead lines. Each piece of glass that enters into the composition of a stained-glass window is held to the other pieces next it by grooved leads, which are soldered together. The smaller the pieces of glass the more numerous the leads, and the network of dark lines thus introduced tended to tone down any garishness of colour there still might be. We may say that ignorance was bliss in the case of the ancient glass stainers. But success is never wholly due to ignorance, and there is abundant evidence that lead lines were mul-

tiplied of choice. Partly, this was in order to give an appearance of construction to the window. It was to form part of an architectural whole, and the designers in this, at least, less ignorant than most moderns, decided to keep their work thoroughly in harmony with its surroundings. Accordingly, most of the mediæval windows are largely filled with glass and lead tracery, following the forms of Gothic Architecture, but in a lighter and freer manner. Arched and gabled canopies, crotched pinnacles, twisted or clustered columns, form a setting for the figures and the diapered or deep blue backgrounds. In our modern work, the necessary harmony between the windows and the building is seldom secured. The permanent window, forming part of the structure, is treated as though it were an easel picture, movable at will. Where any architectural motive is introduced, it is likely to be Gothic if the church be Romanesque, and Byzantine if the church be Gothic. Our

ARCHITECTS ARE SOMEWHAT TO BLAME

for this. They should insist that the windows be regarded as part of the building, and that the designs for them should be in accordance with its style. The Renaissance in the fifteenth and sixteenth centuries greatly affected the art of stained glass. The decorations of churches became mainly mural, and windows were needed that should admit abundant light, and not be themselves more attractive than the pictures. This at first only gave rise to a new and interesting development of painted glass, much of which is very beautiful in its silvery grays and golden yellows and in the elegance of the lead lines, more suitable, however, for private houses than for churches. But the constant improvements, which have ended in the manufacture of absolutely clear and flawless glass in large sheets, together with other causes, finally killed this branch also, and about the end of last century the art was practically extinct. When in the height of the romantic movement of the middle of the nineteenth century, architects and others attempted to revive its glories, they found themselves unexpectedly foiled at every step. The only coloured glass obtainable was thin, ineffective, and without play or modulation of colour.

At a meeting of the School Buildings Committee of the Aberdeen School Board it was decided to instruct the architect, Mr. Mackinnon, to prepare plans forthwith for a new elementary school.

A new organ has been constructed in the Church of SS. Philip and Jacob, Bristol, by Mr. G. Johnson, of Dighton Street, Bristol, and is erected on the latest tubular pneumatic system.

WILLIAM COBBETT'S tomb, near the west door of the fine old abbey church at Farnham, is about to be restored by Mr. John H. Nash, of that town. The portrait carved in relief on the tablet erected to the memory of Cobbett in Farnham parish church was executed by Foley from an original likeness.

EMMANUEL CHURCH, Lockwood, has been reopened, after painting, decorating, and repairs. The work has been carried out by Mr. H. B. Kendall. A new organ, which is in the north-east corner of the nave, has been built by Messrs. Peter Conacher and Co., at a cost of £500.

The foundation-stone has been laid of a church which is being erected about a quarter of a mile distant from the ruins of the Priory of Pluscarden. The Priory was founded by Alexander II., in 1230, and is one of the most beautiful ruins in Scotland. The new church was designed by Messrs. Reid and Willett, and is in keeping with the design of the Priory itself.

MR. MARTIN A. BUCKMASTER, who is art master at Tonbridge School, and art examiner for the Science and Art Department, the Oxford Locals, the Civil Service Commission, and the London County Council, has prepared a text-book on "Elementary Architecture." This is to have thirty-eight full-page illustrations, and it is on the eve of publication by the Clarendon Press.

A PICTURESQUE IRISH SEAPORT.

IN AND ABOUT YOUGHAL.

By H. F. Waring.

II.

THE town of Youghal was formerly surrounded by walls, but owing to the many sieges it has undergone (for the small place seems to have had more than its proper share of troubles), the remains of these are few. It was taken and sacked by the Earl of Desmond in the year 1579, and being regained by Captain White, was in the same year a second time plundered by John Fitzgerald, Seneschal of Immokilly. It was again assailed, but unsuccessfully, in January, 1582. In the civil war of 1641 it was gallantly maintained by the Earl of Cork, who died here whilst shut in by the rebels, 1643. It was again besieged in 1645, but the enemy were finally repulsed. Youghal opened its gates to Oliver Cromwell in 1649, and here the Protector established himself in winter quarters. In the next year he quitted the Irish shores for ever.

So many troubles going on at this period, naturally had the effect of causing the inhabitants to erect strongholds, but the one called after Tynte is the only fortified relic of feudalism now to be seen in Youghal. It was built at the close of the reign of James I. The building measures 39ft. by 23ft. over walls and is about 50ft. high. The walls are still their original height, and are deeply embrasured all round. The doorway at present existing is modern, but doubtless the old entrance stood in the same position, as we may judge from the machicolation overhead on the upper story used for discharging missiles and molten lead on the besiegers. There is an interesting authenticated story in connection with it. In the time of the Rebellion, circa 1643, a number of the English garrison and Protestants of the town who had fled there for refuge, were shut up within its walls. The mayor of the town, named Ronayne, a Roman Catholic, fearing the wrath of the Government if he allowed them to be



THE HOLY WELL, ARDMORE.

killed, despatched a messenger to the officer commanding the garrison at Cork, who sent a troop of cavalry to the relief of the castle. In consequence, the Town Corporation ordered that whenever a "Ronayne" died the town bell should be tolled to keep up the hated memory of the treacherous (!) act of the mayor. This custom still survives, except with the difference that it is now looked upon as an honour. The bell rung is that of the clock tower (illustrated last week) in the south end of the main street, which marks the place of the ancient South Gate. The present clock tower was erected in the seventeenth century, and is executed in red brickwork, with stone facing and quoins used with very good effect. It was, until comparatively recent times, used as a gaol and place of execution.

Though there are many interesting old buildings in Youghal, there was evidently not a new building which had been put up within the last fifty years. This seems to be a fact to be regretted, as it does not speak well for the increasing prosperity of the town, but no doubt it rejoices the heart of the artist, for here he may wander through sleepy old-fashioned alleys, which still have the air of a hundred years ago, and which elsewhere, as time goes on and the jerry and other builders continue to flourish, are rapidly making way

for the "eligible modern villas." May we and they long be spared the change!

Walking southwards, we come to the ferry steps, and board the ferry-boat which plies across the Blackwater. As it happens to be a Sunday we get a sight of typical Irish life. The boat is crowded with country peasants, for the most part old women and comely girls going to Mass, talking hard in Gaelic. These all wear short, coarse, homespun dresses with shoes (on special occasions they *do* cover their feet) that might almost be called "sabots," and as they seem to vie with one another which of them shall wear the brighter head-dress, consisting of a kind of shawl, the effect is picturesque and pleasing in the extreme.

Arrived at the other side, one is able either to walk or get on to that most comfortable of conveyances—the jaunting car, and start in the direction of Ardmore. We soon pass an interesting small Early English church, after which, for about four miles, the road lies through a fairly level country, when we see the Round Tower rising up, and, turning to the right, we enter the small village of Ardmore, which consists of tiny, whitewashed cottages, the appearance of which goes far to refute the bad reputation which the Irish have in the matter of cleanliness and order.

The history of the small place dates back to the early part of the fifth century, for in 402 St. Declan, one of the four primitive preachers of Christianity in Ireland, commenced his mission among the Pagans here. Declan was the son of Ere, chief of a noble family of the Deisi. Such wonderful success attended his labours that the Deisi, forsaking their chief Luban, an obstinate Pagan, followed Declan, who placed them under the headship of Feargall McCormac, one of his own kindred. In 416 a seminary was founded by Declan at Ardmore, from which the light of Christianity radiated into all the surrounding districts, and the retired hamlet became a sanctuary of religion and letters. This school was in connection with a monastic establishment of particular rule, which afterwards was changed into a house of Canons Regular of St. Augustine. In 448 St. Declan was confirmed in the See of Ardmore by the Synod of Cashel which he held this year. He died in 450, and was buried within the little Damphliag, or stone oratory, which in his lifetime had been his primitive cathedral. His grave—or that reputed to be his, is still shown, and is superstitiously revered by the peasantry, who consider the clay taken out of it to be efficacious in the removing of diseases.

Adjoining this Oratory are the remains of a cathedral church, the nave being Romanesque, with a Norman gateway at the north end, and in some Norman arcading. In the east end some most quaint carving is to be seen, representing scenes from the Bible.

Many curious old tombstones are to be seen in the vicinity of this church, the one sketched being in specially good preservation, the figures representing St. Mark, St. Peter and St. Paul, above and on the lower portion, Adam and Eve.

Formerly a monastery stood here, but there



TYNTE'S TOWER.

is no trace of this remaining, except St. Declan's Oratory in which he lived and was buried.

One of the characteristics of the ancient church of Ireland was its asceticism, which it derived from its well-known contact with the Eastern church, where the hermits lived apart in the desert, and hence it is we find so many names of places in Ireland compounded with Desert or Dysert, and to this day, this part of Ardmore is called the desert.

The Holy Well is very curious; it is built with large irregular stones, three of which at the top are carved with a crucifixion. St. Declan used this well as his baptistry, and baptised his converts, the seats on which the candidates sat still being visible.

So great is the faith of the peasants in this



TOMBSTONE IN THE GRAVEYARD, ARDMORE.

Saint, that during a certain fortnight in every year, thousands of them (even in this age of scepticism) with all manner of diseases and sores, flock to the well, where they go through certain ceremonies, consisting of praying, walking round the well, kissing the cross and counting their beads, after which they bathe themselves in a small stream running from the well, and finish by drinking a glass of the water.

The Round Tower of Ardmore, adjoining the site of the cathedral, dates, as probably do the others of Ireland, from the 7th or 8th centuries; all are no doubt of Christian origin. Professor Stokes, of Trinity College, Dublin, traces these round towers from Syria, thence to Constantinople, then from the Iconoclastic period of the Leos to Ravenna and thence to France and Ireland. They all in Ireland have the same peculiarities—the same height and conically shaped top, a door 15ft. from the ground, circular from the base, tapering in a perfect circle to five or six stones, with windows to the cardinal points. The tower at Ardmore shares with one other only in Ireland the peculiarity of string courses on the outside, which, however, do not mark the stories. The towers are invariably found near old churches, and sometimes with the building itself. They were used first as bell towers and keeps in times of danger for the property of the clergy and church, and also as beacons. The one in this instance is kept in repair by the Board of Trade for purposes of a landmark.

ACCORDING to present arrangements, the Art Gallery of the Corporation of the City of London at Guildhall will be reopened to the public by the Lord Mayor and Sheriffs on June 4th, with a new collection of pictures by French masters of the nineteenth century, which has been loaned almost exclusively by private French collectors.

THE GATES OF LONDON.

"THE City wall is great and high," wrote Fitzstephen in the reign of Henry II., "with seven double gates, with towers on the north at proper differences." Hidden away here and there in cellars of City warehouses portions of this great and high wall may yet be inspected; but of the seven great gates not one remains. Perhaps from a utilitarian point of view this is well, for they would have been sore hindrances to the busy streams of traffic in these *fin de siècle* days. Possibly one of the oldest was Aldgate, the earliest mention of which occurs in a charter granted by King Edgar to the Knighton Guild about the year 967. It was doubtless originally one of the four gates by which

THE ROMAN WAYS ENTERED

the ancient Londinium. Its name is supposed to have been derived from the Saxons, who called it Ald or Eald (old), on account of its ruinous condition; but in records dating from 1325 to 1381 it appears as Alegate or Algate. When the Barons rose in arms against John they entered London by this gate, which was then in a dilapidated condition, and shortly afterwards they rebuilt it. It was in the house over the gate that Geoffrey Chaucer, the author of the "Canterbury Tales," lived for many years. In 1606 the old gate was pulled down, and a new one erected during the three following years. According to Maitland, this was an ornate structure, garnished with a gilt vane and effigies of Roman soldiers on the battlements, while beneath, in a "large square," stood a statue of James I. in gilt armour, with a golden lion and unicorn; this was on the east side. On the west face stood

A STATUE OF FORTUNE

with the King's arms below, and the motto, "Dieu et mon droit—Vivat Rex." Figures of Peace, with a dove, and Charity adorned the north and south sides, and over the arch was engraved, "Senatus populusque Londiniensis. Fecit 1609. Humfrey Weld Maior." The gate, which stood in the High Street, south of Aldgate Church, was taken down in 1761. The next gate on the wall was Bishopsgate, erected in or about 675 by Erkenwald, Bishop of London, who was a son of Offa, King of Mercia. This gate is said to have taken its name from the effigies of two bishops, one of which was the founder, the other a Norman prelate, who probably restored the gate during the reign of the Conqueror. In consequence of the Bishop of London receiving a toll of one stick from every cartload of wood passing through the gate he was bound to provide the hinges and keep them in repair. The gate was rebuilt in 1471 by the Hanse merchants, who were exempted in 1305 from the toll of 2s. which had been levied on all goods passing

in or out, in consideration of which they undertook to maintain the structure. In 1731 this gate was demolished, and, says the Evening Standard in an article on the subject, a plainer building erected in its place, which was removed in 1760 for street improvements. Moorgate was a postern made in the old wall by Thomas Falconer, the Mayor, in 1415, to enable the citizens to reach their gardens and neighbouring fields by a shorter route than hitherto. Its proximity to the moor was the origin of its name. It was rebuilt in 1647, and in 1761 was described as one of the

MOST MAGNIFICENT

in the City. It was a loftier structure than usual, to allow, it has been supposed, the trained bands to march through with pikes



THE ROUND TOWER, ARDMORE.

erect, but probably the real motive was the admission of wagons loaded with hay or other commodities. In 1762 the gate was pulled down, and the stones were used to strengthen the central pier of London Bridge. Cripple-gate was thought by Maitland to be one of the four original gates erected over the Roman ways which entered the City. It was rebuilt by the Brewers' Company in 1244, and in Edward I.'s reign was a prison for debtors. This gate was again rebuilt in 1491 by a legacy left by Edmund Shaw, a goldsmith, who was Mayor of London in 1483. It was repaired and "beautified" in 1665, and finally



THE HOLY WELL, ARDMORE.

demolished about a hundred years later. The name is said to have originated from the number of cripples who begged there; while "rare" Ben Johnson, in his play, "Every Man out of His Humour," says, "As lame as Vulcan or the founder of Cripple-gate." As the gate stood at the entrance to the covered way to the Barbican, it is considered probable that its name was derived from the Saxon "crepel," a den or passage underground. Of Aldersgate, which stood near the Church of St. Botolph, old Stow, the antiquary, says: "Eluresgate, or Aldersgate, so called not of Aldrich or Elders—that is to say, ancient men, builders thereof; not of Eldarne trees growing there more abundantly than in other places, as some have fabled; but for the very antiquity of the gate itself, being one of the first four gates of the City." Maitland, however, does not share in this view of its antiquity, and by others it is supposed to owe its name to one Aldrich, a Saxon. In a charter dated 1243 it is called Aldrichesgate. During the reign of Elizabeth the gate and the rooms over it were enlarged and improved by John Daye, a celebrated printer, who published one of the earliest English almanacs there in 1550, and who had for a lodger in 1567 Fox, the author of the world-known "Book of Martyrs." The gate was rebuilt in 1616. A statue of James I. on horseback, with the arms of England, Scotland, and Ireland above his head, adorned the facade of the gate; while another effigy of the monarch, seated and wearing the robes of State, graced the south front, and on the east and west sides were figures of Jeremiah and Samuel. The gate was much

INJURED DURING THE GREAT FIRE, and was repaired at the City's expense in 1670. Pepys, the celebrated diarist, under the date October 20, 1660, remarks: "I saw the limbs of some of our new traitors set upon Aldersgate, which was a sad sight to see." The structure was sold by auction in 1761, and shortly afterwards was removed. Across Newgate Street, a little to the east of Giltspur Street and the Old Bailey, stood Newgate, erected in the reign of Henry I. According to Maitland, it was appropriated for a common gaol for felons in 1218, but it is mentioned as a prison in records dating back to 1188. The same authority states that it was repaired in 1420 and again in 1630. The gate appears to have been rebuilt by Sir Richard Whittington and to have been repaired in 1556 after a fire caused by the carelessness of the "keeper's mayde" which proved less destructive than the Great Fire more than a century later. It was rebuilt in the year 1672, and finally taken down in 1767. The last of the great City gates was Ludgate, which was built, according to Geoffrey of Monmouth, by that mythical personage King Lud, who is said to have flourished in 66 B.C. But taking into consideration its proximity to the Fleet river, it is most probable that its name was a corruption of the Saxon "flod," a small navigable river. This was one of the gates by which the Barons entered London during

THEIR WAR WITH JOHN, and finding it and the adjoining wall in a dilapidated condition they pulled down the houses of those Jews who were living in its neighbourhood to repair both the wall and the gate. In 1373 the gate was made into a free prison for poor debtors and freemen of the City, and was enlarged by Sir Stephen Forster, Mayor, who was himself once a poor prisoner. In 1419 Ludgate was "ordained as a prison for citizens and reputable persons," and Ben Jonson, in the plays previously quoted, says, "Beware you commerce not with bankrupts and Ludgathians." The gate was rebuilt in 1586, and adorned with statues of Queen Elizabeth on the west side and of King Lud and his two sons on the east. It was seriously injured in the Great Fire, was repaired or rebuilt, and was finally removed in 1760—a record year in the destruction of these old City gates. The structure known as Temple Bar was not, properly speaking, a gate. It was originally, as its name implies, a bar or chain erected at the end of Fleet Street by the Knight Templars to mark the boundary of the City control without its walls.

NEWSTEAD ABBEY.

By A PILGRIM.

THE genius of Childe Harold has rendered Newstead radiant for all time. You might as well think of Stratford-on-Avon without Shakespeare as Newstead without Byron. The Abbey, says a writer in the Sheffield Telegraph, is not a great show place like Chatsworth or Welbeck, but it may always be inspected on two days of the week. After leaving Newstead Station it is the proverbial stone's throw to the first Lodge gate. It gives access to a long avenue leading to the second Lodge. This gained, the visitor is transported into a world of rural life and rustic character. Presently comes in sight a low castellated ivy-grown building with a clock-tower. It is only the Abbey stables. They stand on the margin of a beautiful lake. A moment more, and now, lo! and behold! the real Newstead, flanked at one extremity by the great square tower, and at the other by the remains of

THE OLD ABBEY CHURCH.

The tracery of the great west window has disappeared, but the beautiful doorways remain intact. The Abbey is at once a picture-gallery and a museum. The Grand Saloon is hung with paintings by Vandyck, Kneller, and Lely. The eye dwells on Phillip's famous portrait of Lord Byron—the Lara-like peer—made familiar to us by many engravings. Among the *chefs d'œuvre* of this stately apartment may be mentioned a precious Etruscan vase, a table from an old Italian palace, with its top marvellously jewelled with precious stones; a chair that belonged to Warren Hastings, and the case in which once reposed the skull drinking cup used by Byron and his Bacchanial companions when masquerading at midnight in the Abbey as monks.

THE GREAT DINING HALL,

the refectory of the ancient Abbey, is a room of distinction. The Past and Present here shake hands, for from bosses of the fine old oak ceiling peep out the lamps of the electric light. One end of this room is occupied by a minstrels' gallery, after the manner of the musicians' balcony in the banqueting hall at Haddon. The walls are so diversified with old armour, helmets, cuirasses, military colours, flags, and banners (taken from the field of Waterloo, on which Colonel Wildman fought, and which inspired Byron with the finest lines in "Childe Harold's Pilgrimage") that the *tout ensemble* reminds one of the relics of the warlike past at Abbotsford, a collection which more than one writer has said, as a whole, leaves an impression on the mind of the visitor that there must have been a good deal of personal sympathy mixed up with the playful satire with which the inimitable character of the "Antiquary" is treated. Newstead is

A TREASURE-HOUSE OF ART.

But more beautiful than the pictures on the walls are those framed by the windows; vignettes these of wood and water, lawn and lea, that come as a revelation to the street-stricken citizen; landscapes that the artist who works in oil colours finds it passing hard to realise—light, air, liquidness, distance, the rapture of repose, and the lovely loveliness and dreamy quiet of Nature. One cannot help thinking that the Abbey and its surroundings must have exercised a good influence over Lord Byron's unhappy life, and added brighter hues now and then to his inspiration. The Byron rooms remain almost as the poet left them. Here is the very bed upon which he tossed through the feverish vigils of many a weary night—a substantial four-poster, with heavy curtains and a dome-shaped top, the corners surmounted by coronets; here is the chest of drawers which held his "portable property;" here is his washstand, with its quaint blue China bowls. A small chamber next Lord Byron's bedroom, formerly the infirmary for invalid monks, and which had the grisly reputation of being haunted, the poet had fitted up for his page. After inspecting the Byron rooms, we visit the cloisters, and the chapter-house, now used as a private chapel.

CARDIFF CHURCH.

THE SCHEME OF RESTORATION COMPLETED.

THE work of restoring the Parish Church at Cardiff began about nine years ago. It has now been completed. Nearly £20,000 has been expended upon the edifice. The work has been carried out with Mr. C. B. Fowler as architect—an appointment made by the Corporation at the wish of the Vestry. The contractors for the walling and coping, the cementing of the paths, etc., were Messrs. Turner and Sons, of Cardiff, and the wrought iron railing is the work of Messrs. Letheren and Son, of Cheltenham. The alterations in and around the churchyard have cost as near as possible £1500. The areas in the graveyard have been turfed, and at the express desire of Lord Bute gravel paths have been made round the church. It was found necessary in the cause of carrying on the work to disturb a large number of the graves, the contents of which were carefully taken and reinterred in the New Cemetery, with the headstones above them. An object of great interest in the churchyard has been the old fifteenth century cross. This was excavated, but it was found that all the steps were missing, only the rubble foundation of the cross remaining. It was accordingly decided to restore the cross, and the work has been carried out in the best Portland stone by Mr. Clarke, of Llandaff, from designs and under the superintendence of Mr. C. B. Fowler. It is now to be regarded as a memorial of the restoration of the whole of the church tower and graveyard. The head of the Cross represents the Crucifixion and the Ascension, surmounted with a canopy with crocketed pinnacles in harmony with those upon the tower. The base of the tower has also been restored in its erstwhile octagonal shaped steps leading up to the base of the shaft of the cross. It is interesting to note that in the course of generations the level of the churchyard has risen some 3ft., the base of the steps leading to the cross representing the original level. From an architectural point of view, Cardiff Parish Church is one of great beauty—a venerable pile, the neglect of which would have been at once a disgrace and a scandal to a professedly intelligent and cultured community.

A new Primitive Methodist chapel is being erected at Wellington at a cost of £1900.

A school and parochial hall has been erected at Egremont, Liverpool.

New Sunday Schools have been erected in connection with the Lindfield Congregational Church.

Two new stores have been erected, at a cost of over £1000 each, by the Batley Co-operative Society. The shops are respectively situate at Mount Pleasant and Carlinghow.

The Queen has become the possessor of Mr. Holman Hunt's picture "The Beloved," which is at present in the New Gallery. It will be removed to Windsor at the end of June.

The Nottingham Tabernacle has been reopened. The building has been thoroughly cleaned and the appearance considerably enhanced by extensive decorations.

The Newcastle Council propose to widen Corporation Street to the top of Westgate Road, to make a new street crossing from Pilgrim Street, in a line with Market Street, to Picta Place, and to widen Byker Bridge.

MR. HARRISON HAYTER, past president of the Institution of Civil Engineers, died recently at his residence, 61, Addison Road, Kensington, W., at the age of seventy-three. He was one of the most prominent civil engineers in this country.

ONE of the two marble busts of the late Sir John Pender, G.C.M.G., executed by Mr. E. Onslow Ford, has now been received by the authorities of University College, London. The bust has been placed in the library. The likeness is a pleasing and striking one. The second bust is at present on view at the New Gallery.

A NEW WORKHOUSE AT NOTTINGHAM.

EXTENSIVE BUILDINGS PROJECTED.

A NEW workhouse is about to be erected at Nottingham. The accepted plans show the building as one of the largest of its kind in the country. The site comprises 67½ acres; it was purchased at a cost of £12,900. The Board of Guardians advertised for competitive drawings for the accommodation of 1500 people, and the necessary offices, &c. The competition was limited to Nottingham firms and six London firms. Of the latter only one competed. Mr. W. H. Ward, of Birmingham, was appointed assessor, and he selected the plans of Messrs. Marshall and Turner, of King Street, Nottingham, as the most suitable for the purpose, awarding the second place to Messrs. Brewill and Baily (Nottingham), and the third to Messrs. R. C. Sutton and Son (Nottingham). Tenders were received for the preparing for and putting in of the foundations, and Messrs. Hodson and Son, of Nottingham, were appointed the contractors. Arrangements are being pushed forward for the letting of the contract for the superstructure. The total estimated cost of the new workhouse, exclusive of the land and of furnishing, is about £250,000. When completed, the building will be one of the most conveniently arranged and extensive institutions of its kind in the country. The main building, or workhouse proper, is to be arranged to provide for the admission of 612, accommodation being apportioned for 120 able-bodied inmates, 100 infirm, 380 persons of both sexes, and for twelve married couples. This part is represented in the lower range of buildings, the administrative block being arranged between, with kitchens, food and general storerooms, large dining hall, offices, committee-rooms, and apartments for the master, matron, and servants. The infirmary is noticeable as the extensive range of premises to be constructed at the higher portion of the site. Here provision will be made for 560 patients. In this case also the administrative block forms a division for the buildings inhabited by male and female inmates respectively, kitchen and store accommodation upon a liberal scale being included in addition to distinct quarters for dispensary, operations, medical offices, committee rooms, and separate apartments arranged for the storekeepers and steward. A small isolation hospital will occupy the extreme top left-hand corner of the side, the building including a children's infirmary for thirty, a nurse's home capable of accommodating forty-five, and a separate block of premises for the reception of mothers with infants. The engine and boiler-house occupies a central position immediately between the workhouse and infirmary, and on either side are buildings representing the workhouse and infirmary laundries respectively. Workshops, stables, the labour master's house, a mortuary, and remand boys' quarters are directly behind the workhouse. A large block of buildings at the extreme right of the site provides for the reception of 216 imbeciles, and in proximity to the entrance are the porter's lodge, receiving wards for nine, and vagrant wards for sixty-eight, together with stone breaking yards and sheds. The chapel is placed on the knoll commanding the whole site. The total accommodation in the entire building represents provision for 1614, exclusive of members of the staff.

A MEETING of members of the congregation of Oldbury Parish Church has decided to proceed with the renovation of the church at once, and appointed a committee to confer with Mr. Wood, architect, and obtain some idea of the cost of the repairs.

It is proposed that the appearance of Aberdeen should be enhanced by the formation of a boulevard extending from Holburn Street westwards by Rubislaw, passing over Stockert Roads in the north-west, and terminating at Kittybrewster, in the northern district of the city.

STEEL CONSTRUCTION IN ARCHITECTURE.

AMERICAN AND ENGLISH METHODS.

IN an interesting article dealing with steel construction, Mr. Charles V. Childs remarks—in the Engineering Magazine—that the architects of the different countries being obliged to keep within the limits of their respective building laws, the restrictions imposed on them naturally affect not only the visible appearance of the building, but also its internal structure. While it is highly probable that but few London buildings would come up to the standard prescribed by the New York building laws—i.e., inside the so-called fire limits of New York—on the other hand, it is certain that the London County Council would never permit the erection of the steel constructed "skyscraper" within the area under its control. As an instance, in proof of the former statement, it is necessary only to notice how many of the front walls of London shops are carried on bressummers resting on exposed cast-iron columns. The New York building laws provide that all cast-iron columns supporting outside walls shall be incased in an outer cast-iron shell with an intervening air space, the internal column being sufficiently strong to carry the load.

EVIL OF THE "SKYSCRAPER."

It is appalling to think what the streets of London, already in so congested a condition, would be like, were it permissible to erect buildings fifteen or twenty stories high. The burning question of New York has long been to provide sufficient rapid transit to and from the business centre of the city; and, while the solution is yet far off, the continued erection of high office buildings is making matters worse by concentrating business offices within comparatively narrow limits. The excessive height of the American buildings has necessitated the use of the steel skeleton construction, in order to economise the weight, and consequently the thickness of the walls in the lower stories, which otherwise would occupy valuable space, to say nothing of the cost of material and labour. The usual thickness of the walls, which, from the nature of the construction, serve only as a covering, is from 13½ in. to 18 in. In England the thickness of wall at the ground-floor level rarely has to exceed 2 ft. 3 in.; if, however, instead of being five or six stories, the buildings were to be three or four times that height, the increase in thickness would have to be enormous, and the steel skeleton framework would probably come into general use. The steel construction, therefore, has to adapt itself to the style of building prevailing in the different countries. The essential difference, broadly speaking, is that, whereas in American construction each story is

SUPPORTED ENTIRELY BY GIRDERS

at the floor-level of the story, and the weight directly transmitted to the foundations by means of the steel columns (Anglice stanchions), the usual English practice is to place all necessary bressummers at the level of the first floor; these, therefore, having to carry the whole weight of the building above this level, are necessarily heavy compound or plate girders. Certain of the American features might be introduced into the English buildings with advantage; the difficulty of doing so lies in the fact that the architect's plans are practically complete before the engineer's work begins. . . . The steel work in an American building begins a few inches above the foundations, and consists of layers of steel beams, embedded in concrete, to form the piers, on which the steel bases of the columns rest. The bottom layer is so designed that the load is distributed to the ground at an allowable pressure of two or three tons per square foot pressure; this being the same for all piers, any settlement would be uniform throughout the building. In the next layer the beams rest on those below, at angles to them, and their length is equal to the breadth of the lower layer. The ends of the beams of each successive layer

project, and act as cantilevers, their sizes being determined by the intensity of pressure on their cantilever ends. Anchor rods are embedded in the concrete, and bolt the column bases to the flanges of the uppermost layer. By this method the height of the pier is considerably lessened, effecting a saving in excavation and concrete. The tops of the piers are kept just below the basement floor-level, in order to economise room. The English architect depends on concrete alone for his foundations, and, where buildings have been pulled down, utilises the old bricks for this purpose.

PIERS AND STANCHIONS.

In America the space under the sidewalks, being the property of the owner of the adjoining building, is part of the basement floor. The outside walls are carried on lintels just below the side-walk level! As each floor is carried on girders independently of the other floors, these lintels have to support only the weight of the ground-floor walls and probably a portion of the ground-floor load. Where the columns carry party walls, it frequently happens that there is not sufficient space inside the building line to allow the column bases to rest fairly on the piers; in such cases the piers are built inside the party line, and the bases of the columns rest on strong cantilever girders bearing on the piers, the other ends of the girders being either counterbalanced by the internal columns or anchored down to a mass of concrete. In English buildings, on the other hand, the stanchions carrying bressummers usually rest on blue brick piers, built up to within a foot of the ground-floor level, and the bases of the stanchions are bolted to York stone plinths. Frequently a sheet of lead is laid between the steel base and the stone. Mention is made of this, because experiments have shown that the practice is harmful; the crushing strength of the stone is thereby diminished, the supposition being that the lead flows into any unevenness in the stone, and acts as a wedge. The columns in American practice are two stories in height, and the connections are made to break joint alternately at each floor. All connections of columns to columns, girders to columns, and cross-joints to girders are riveted, the riveting gang following after the erection gang, and carefully plumbing each column before riveting it to the one below. The steel skeleton is thus as much a structure in itself as in the case of a bridge.

FIREPROOFING.

In regard to the methods of fireproofing: stone, brick, and steel are not, strictly speaking, fireproof; and, until English architects fully realise this fact, and introduce proper fire-resisting material, no building in England will be worthy of the name "fireproof." In America all girders and joists are carefully encased in tiles made of fireclay, with an air space, to act as a non-conductor of heat, between the tiles and the steel work. Moreover, the partitions between the rooms and the furring inside the brick walls are of firebrick. The firebrick contract is naturally an expensive item, the estimate for the Carnegie Building amounting to 50,000 dollars for this portion of the work. English fireproofing may withstand a small fire originating inside the building, but is entirely inadequate to resist a large body of heat, such as may be caused by the conflagration of neighbouring buildings, or the combustion of inflammable material stored within the building.

THE Dewsbury and District Technical School governors have accepted a scheme for extending the building at an estimated cost of £5,000, Mr. J. L. Fox to be the architect.

OWSTON CHURCH, near Doncaster, has been reopened after the restoration of the fine old Norman tower, which was in an unsafe condition. The cost has been over £600.

THE foundation stone has been laid of the new Roman Catholic Church of SS. Peter and Paul, at Ilford. The new building is of a plain character, and is only regarded as a temporary church. The church was built at the total cost of £2000.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
May 25th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

The design of Mr. R. Burns Dick, architect, 55, Northumberland Street, Newcastle, has been selected, in open competition, for the proposed new police-court and lock-up at Berwick-upon-Tweed. There were thirty-seven competitors, and the assessor was Mr. J. Cresswell, County Architect. The buildings on the ground floor will consist of a police-station with seven cells and a house for resident constable; and, on the upper floor, of police-court, with magistrates', witnesses, and other rooms. The estimated cost is about £5000. The plans of Mr. Charles Fred. Short, London, were placed second.

The Athens correspondent of the Standard states that Mr. Penrose, the well-known English architect and archaeologist, who recently arrived there at the invitation of the Government, has attended before the Council of Ministers and given evidence regarding the endangered condition of the Parthenon, and advised that certain works should be undertaken. He demonstrated the serious risks to which the signs of the crumbling state of the structure point, and the probable fall of the western vestibule. Mr. Penrose expressed the conviction that the monument may yet be preserved for several centuries, thanks to the works of consolidation already carried out and to be continued according to his suggestions. The work already done by the Greek Committee has been approved by Mr. Penrose.

The officers of the Architectural Association for the session 1898-99 will be as follows:—President—Mr. G. H. Fellowes-Prynn; Vice-Presidents—Mr. P. J. Marvin and Mr. A. S. Flower; Committee—Messrs. T. W. Aldwinckle, jun., R. S. Balfour, H. B. Creswell, B. F. Fletcher, M. Garbutt, A. H. Hart, Beresford Pite, W. A. Pite, H. A. Satchell, and W. H. Seth-Smith; Hon. Treasurer—Mr. Hampden W. Pratt; Hon. Librarian—Mr. C. H. Freeman; Hon. Secretaries—Mr. E. Howley Sim and Mr. G. B. Carvill. Other officers:—Hon. Solicitor—Mr. W. H. Jamieson; Hon. Assistant Librarian—Mr. E. W. M. Wonnacott; Hon. Auditors—Mr. H. P. G. Maule and Mr. J. W. Stonhold; Assistant Secretary and Registrar—Mr. D. G. Driver.—The annual dinner takes place to-morrow (Thursday) at the Holborn Restaurant.

It is stated that Sir John Millais' portrait of Mr. Gladstone is to be hung in the National Gallery. There is one, if not two, portraits of the great statesman in the National Portrait Gallery, and it is fitting that this one, which

has an historical value, and is one of the finest examples of the works of our greatest modern master, should have a place in a gallery of masterpieces. There will then be two of Sir John Millais' paintings in the National Gallery. It is also stated that Millais' "The Order of Release," which was sold for so large a sum the other day, was purchased by Sir Henry Tate, who proposes to place it in the Gallery which bears his name.

MESSRS. CHRISTIE, MANSON, AND WOODS recently sold the valuable collection of objects of art and decorative furniture of the late Mr. Robert Rankin, of Liverpool. The 157 lots brought a total of £3402, the articles in blue and white china and old Sèvres porcelain in particular selling exceptionally well. The principal lots included: A miniature portrait of Queen Elizabeth, in richly jewelled dress and white ruff, by I. Oliver, 44 guineas; a pair of Chelsea plates, gold anchor mark, 38 guineas; a large Chelsea cup and saucer, 40 guineas; a Dresden group of lady and gentleman, dancing, 50 guineas; old Sèvres, a pair of circular dishes, 55 guineas; a verriere, dark blue, 115 guineas; and an oviform vase, 44 guineas. Old Chinese porcelain, a pair of egg-shell deep plates, 50 guineas; and a deep plate, enamelled with a lady and two children, 41 guineas. Old Nanking porcelain, an oviform jar, 31 guineas; a pair of beakers, 6½ in. high, 62 guineas; a pair of triple gourd-shaped bottles, 48 guineas; a cylindrical jar and cover, 40 guineas; a pair of the same, £115; a pair of oviform vases and covers, 58 guineas; and a pair of cylindrical bottles, £230. Decorative objects, a pair of candlesticks, formed of vases of old Sèvres porcelain, 70 guineas; a pair of candelabra, 62 guineas; a Sheraton secretary of mahogany and satinwood, inlaid, 100 guineas.

In an address recently at the galleries of the Royal Society of British Artists, Suffolk Street, the Bishop of Bristol spoke of the pictorial artist as the man who cured the imperfections of our vision. The appreciation of beautiful things was often a growth. There was a time when he laughed at the notion of collecting old china and old furniture. Now he was alive to the beauties of teacups, and spent much time admiring Chippendale chairs. A good picture of a church interior was not merely the representation of a building. It compelled lofty emotions, and as you looked at the canvas you could hear the angels singing. At the conclusion of the address Sir Wyke Bayliss said his lordship had revealed so much of the feeling of an artist that it was sad to remember he was only a bishop.

RICHMOND HILL is again in danger. The Hon. Secretary of the Preservation Committee writes as follows:—"A scheme is on foot for the construction of a railway actually over the Hill. The proposed line is no mere tramway, but a standard gauge railway for the conveyance both of goods and passengers, applied for under the powers of that most loosely framed enactment, the Light Railways Act of 1896, and intended to pass along the public highway called the Queen's Road, past the Star and Garter Hotel and Richmond Park gates, down Petersham Hill, through the lovely spot known as Petersham Common, and the pleasant village of Petersham, through 'umbrageous Ham,' and so to Kingston and Hampton Court. The proposed mode of traction is electricity, conveyed by cables suspended on hideous overhead standards from a generating station somewhere on the Middlesex side of the river. The line is one for which there is no public requirement whatever, and is designed merely in the interests of the promoters, and possibly of the Hampton Court tripper, and I appeal to every admirer of the beauties of Richmond Hill to record his protest against such a desecration of the place. It is only within the last few weeks that the protests of public opinion have rescued the beautiful scenery of Henley Reach from the disfigurements threatened by one of the great railway companies. May I hope that the same public opinion will now come to the rescue of that equally lovely spot, Richmond Hill?"

THE public mind in Birmingham is a good deal exercised as to the future of the Christ Church site. At present it is understood the Colmore trustees, who purchased the site, have not decided upon any use to which it is to be put. It is, however, true that a sketch plan has been prepared by Messrs. Hennan and Cooper for a block of commercial buildings, the central feature of which is an exchange hall, with a lofty tower, looking towards Paradise Street. The difficulties, incidental to the site, have been overcome in the architects' design by placing the Exchange Hall on the level of Waterloo Street, and so obtaining a lower ground level for shops facing and in the level of New Street, and by the formation of an arcade on the remaining three sides, by which no fewer than thirty shops in all are secured. In addition to this the upper stages of the building are generally set back some 12ft. from the frontage lines, which will improve the lighting all round, and provide a substantial horizontal base for the imposing building above. The Colmore trustees, as indicated, have not yet had any scheme submitted for their consideration, but it is probable that matters will take some definite shape within the next few weeks.

THE memorial window to be placed in Crathie Church by the Queen's tenants and servants on the Balmoral estate in commemoration of the sixtieth year of Her Majesty's reign is being designed and constructed in London. It is to be placed in the north transept, and will be of the same size and architectural design as the window in the south transept—three small Gothic arches, the centre arch predominating. A figure representing King David will be the central feature, and there will be subsidiary figures at the sides, with appropriate texts.

THE documents with regard to the competition for designs and plans for the new workhouse, at New Cross, Wednesfield, have been issued by the Workhouse Committee of the Wolverhampton Board of Guardians. It has been decided not to have an open competition for the appointment of architect, but that the competition shall be limited to three architects, to be selected by the Guardians, who are recommended to select Messrs. Magnall and Littlewoods (of Manchester), Mr. W. Doubleday (of Birmingham), and Messrs. Marshall and Turner (of Nottingham), to compete, on the terms that the author or authors of the designs and plans selected by the Guardians have the appointment of architect at the usual fee of 5 per cent. upon the outlay authorised by the Guardians, to include all fees and extras, and that each of the other two competing architects be paid a sum of £100 for their fees and expenses. The designs are to be delivered by the 1st July next.

THE three historical paintings which for some time past have been hanging in Committee Room 10 at the House of Commons are to be reported upon by Professor A. H. Church, F.R.S., who has just completed the restoration of all the beautiful frescoes in various parts of the Palace of Westminster, and their ultimate destination will probably be one of the Government Offices. The only difficulty in regard to their disposition has arisen in the case of Mr. Watts's enormous canvas representing Alfred inciting the Britons to resist the Danes, which covers nearly the whole of one side of the room. The other two—Cross's "Pardon of Bertrand by Richard Cœur de Lion" and Pickergill's "Burial of Harold"—are very much smaller. All of them were executed half a century ago at the request of the Fine Arts Commission, and were originally placed in the members' old smoking-room.

THE Edinburgh Rustic Art Club held their twenty-first anniversary dinner recently. Mr. W. Drummond Young presided, and proposed the toast of "The Royal Scottish Academy," which was acknowledged by Mr. W. D. Mackay, R.S.A.—Mr. A. Roche, A.R.S.A., proposed "The Rustic Art Club." He congratulated the Club on its present position, and said that he could not imagine broader and simpler principles than

those on which it was founded—every member of it getting the same chance, and every man sharing the responsibility. The Club was certainly remarkable, because an amateur club of the kind which had gone on for twenty-one years, and had carried out its object so thoroughly, was phenomenal. The members did not get any initials after their names or any meretricious acknowledgments, so that they must have been very genuinely in love with Art and with its advancement. His belief was that a Club which had accomplished such first-class work in the past, and which was founded on so sound a basis, would continue on the same flourishing lines in the future.—Mr. J. Coutts responded to the toast.

THE finishing touches have just been given to the restoration of Lady Stair's house in the Lawnmarket, Edinburgh, the work having been superintended by Mr. G. S. Aitken, architect, 49, Queen Street, Edinburgh, by the direction of Lord Rosebery. The house, as restored, cannot fail to be one of the most interesting landmarks of old Edinburgh, and one which every visitor to the old town will wish to see. It stands in an alley in Lady Stair's Close, midway between the Lawnmarket and the Mound, and the only thing to be regretted is that it is hidden entirely from anyone passing up and down to the Castle, or from the George IV. Bridge to Princes Street. It was built by Sir William Gray, of Pittendrum, and the initials of the original proprietor and his wife figure on a sculptured stone over the doorway along with a small coat armorial, with the initials W. G. and G. S., and the date 1622, with the motto, "Fear the Lord and depart from evil." This same legend has been repeated on one of the panels in the large hall inside, along with another over the main fireplace, "Blissit be God for all His gifts." A special feature are the richly-carved wooden mantelpieces, from which the paint and white-wash has been scraped.

LORD ROSEBERY must be complimented on his patriotism and good taste in rescuing such a building from inevitable decay and common uses, and preserving it as a relic of an early seventeenth-century building in the old town of Edinburgh. Mr. Aitken, the architect, has bestowed an enormous amount of care on the restoration and the decorations of the roof and cornices in the main hall, which are done in gold and colour by Bonnor. The arms of the family of Primrose, Stair, Rothschild, are in evidence, and an inscription is there as to the restoration by Lord Rosebery in the jubilee year of 1897. Emblematic designs on the roof of the ceiling stand for music, religion, printing, publishing, and astrology. Portraits are there of George Buchanan, John Knox, Sir Walter Scott, and Robert Adam, the architect. The printers and publishers are also memorialised. The name of Myllar, the printer, whose book-plate was a windmill and a miller with a sack of flour, is memorialised, as also Nelson, and there is a picture of the teneament in the Lawnmarket where he commenced business; the names of Lekprevik, Creech, Constable, and Chambers are also in evidence. The chandelier is from an original design by Mr. Aitken, and is in ironwork made at Frome. The bedrooms and kitchen have also been thoroughly restored, so that there is nothing to prevent the house from being a comfortable and commodious residence save its position and rather sordid surroundings.

FIRE has completely destroyed Rendlesham Hall, Suffolk. The outbreak occurred in the roof above the kitchen, and spread with great rapidity from end to end of the building. The house was of modern construction, with iron girders and concrete floors between each story, and was believed to be fireproof. The burning material from the top, however, broke through into all the floors below, and every room in the house was eventually burnt out.

SOME well-known artists are represented in the modest little exhibition of cabinet pictures, sculptures, and stained glass which the Surrey Art Club have brought together this year at

the Clifford Gallery in the Haymarket. The show, although extremely interesting, is quite conventional. No note of eccentricity is sounded such as might proclaim the inception of a new "school." The accident of residence, not the affinity of artistic aim, seems to be the sole bond of union recognised by members. Curiously enough the county from which the club takes its name, rich as it is in distinctive and tempting landscapes, finds little honour on the walls of the exhibition. The skies and Architecture of Italy, the drives of Schierknin-gen, the mountain and flood of the Welsh and Highland hills, the usual variety of anecdotal subjects—these apparently are the favourite material of this as of other organisations of artists. Yet Surrey is not altogether neglected. Its far-extending downs and mellow harmonies of colour are worthily commemorated by Mr. F. A. Oldaker, Mr. John Gray, Mr. G. E. Grace, and Mr. Claude Hayes.

VARIOUS hints have recently appeared in regard to the proposed purchase by the Prince of Wales of a seaside residence in the neighbourhood of Cromer. It is now stated that Felbrigg Hall, a pretty old Elizabethan mansion about three miles out of Cromer, will probably be acquired by the Prince as an easily accessible seaside resort for his family. There are about a couple of hundred acres of land with the Hall, the mansion itself standing amidst lovely wooded scenery, the beeches being as fine as the famous old trees at Burnham. There is good stabling, the neighbourhood is historically interesting and naturally picturesque.

MR. JAMES HINE, in a speech before the Devon and Exeter Architectural Society, to which we made reference last week, said that in an age like the present, when nearly everything pertaining to a building could be produced by machinery, there must necessarily follow great monotony and absence of artistic interest in the buildings—largely composed of them. Trade catalogue Architecture might be all very well from a strictly commercial and economical point of view, but the tendency of it was to destroy all individuality in a building and to drag Architecture proper into oblivion. Buildings were being pulled down in all parts of England possessing historical interest and features of architectural beauty; were they to be supplanted by lifeless structures of this automatic type? This was a subject which demands the consideration of all. Let them hope that in the coming century, as in all great periods of Architecture, buildings might be more and more the reflex of the individual mind of the architect.

It is stated that Mr. Armstrong, Director of Art in the Science and Art Department, will definitely retire from the service in September next. The post, in relation to the Art education of the country, is of the greatest importance, therefore in Art circles the prospective vacancy is already exciting much interest, and several well-known names are mentioned in connection with it, prominently Mr. Alfred Gilbert, R.A., Mr. Herkomer, R.A., and Mr. Walter Crane.

THE monument which has been erected to the memory of the Duke of Clarence and Avondale, in the Albert Chapel at Windsor Castle, is a beautiful work of art. It was designed and executed by Mr. Alfred Gilbert, R.A., and, with the exception of a few minor details, is virtually completed. It will be remembered that within a year of the decease of Prince Albert Victor his remains were enclosed in a handsome sarcophagus of Mexican onyx, a rare and costly stone, which had been specially chosen for the construction of the Royal tomb. This sarcophagus has now been surmounted by an exceedingly interesting group of statuary, exquisitely wrought in bronze, aluminium, and marble. A recumbent statue, representing the Duke of Clarence attired in the handsome uniform of his regiment, the 10th Hussars, and lying in the folds of the Garter robe, reposes upon a massive yet elegantly-designed gun-metal

bier. The gold military embroidery upon the collar and cuffs and aiguillettes are treated conventionally. The head and hands are sculptured in white marble, the delicately-chiselled features being an excellent likeness of his Royal Highness. In the Prince's right hand is a drawn sword, and round the blade is a spray of olive leaves, the end of which rests upon an open gilt-edged Bible. The lining of the robe is composed of aluminium, in imitation of the inner silk drapery of the Garter vestment. A beautifully-modelled angelic figure, also cast in aluminium, and holding a gilt corona typical of the crown of eternity, twined with light foliage, kneels sorrowfully at the head; and near the feet will presently be placed a figure representative of Love mourning, burying its head in a closely-wrapped veil and holding an incompleting wreath in the right hand, which depends listlessly by its side.

M. RODIN, the sculptor, is at daggers drawn with the Literary Society, which refuses to accept his plaster cast statue of Balzac now in the Salon. The sculptor sought to chisel out an ideal Balzac, the author of the marvellous synthesis of life called the "Comédie Humaine," but the literary people contend that the model statue evolved by M. Rodin makes the great novelist look like a lunatic in a strait waistcoat. The sculptor is so disgusted that he calls the men of letters grocers. He also threatens to withdraw his cast from the Salon, especially as he has received an offer for the statue. The sculptor's theory is that he ought to build an ideal Balzac, not a mere photographic and commonplace copy of an ordinary man, such as he says others nowadays supply for commercial commands. The literary people, however, want Balzac as he was, and devoid of anything romantic or ideal. The author of "Père Goriot" seems, therefore, destined to have a longer wait than ever for a memorial in marble or bronze, unless the existing dissensions between the sculptor and the members of the Société des Gens de Lettres be terminated by an amicable understanding.

NEVER was so great a work carried on in London with so little show as the working of the Central London Railway. The western portion, which got well under weigh before the necessary purchases of properties had been effected farther east, is now approaching completion so far as the tunnels are concerned, and in a few weeks this part of the undertaking will, it is expected, be out of the contractors' hands. Every section of the line is now making rapid progress, including that portion under the Holborn Viaduct. To burrow under a structure of this immense weight, as well as beneath the old "Fleet ditch," which modern engineering has converted into a main sewer, is a particularly daring venture. This part of the work is being carried on under compressed air. At the western terminus at Shepherd's Bush a start has been made with the great depot for the electrical generating plant. Foundations are being got in for the necessary buildings, including two immense chimney stacks.

THE most difficult piece of engineering work since the making of the Midland Railway through Darfield is being carried out in widening the line between Darfield and Wath-on-Dearne, by Messrs. Walter Scott and Co., contractors, Newcastle-on-Tyne. This is the Midland Railway's main line between London and Scotland, and as a consequence the present traffic cannot be interfered with, so that the work of excavation for removing the tunnel, which is 132 yds. long, has to be done without stopping the goods and passenger traffic. From the tunnel mouth to the surface is solid rock, about 75 ft. in depth, and to remove this the contractors have sunk two shafts 40 ft. deep, and are driving a drift to the southern end of the tunnel. When this is done, the surface and rock over the tunnel will be removed, tipped down the shafts into wagons, and conveyed through the drift to another portion of the widening. To remove this weight of rock without shaking the masonry is a remarkable piece of engineering skill.

FOUNDATIONS *

AS APPLIED TO LONDON BUILDINGS
AND RIVERSIDE FOUNDATIONS.

By A. T. WALMSLEY.

THERE are few subjects with which an architect has to deal which involve the consideration of so many points of detail as the subject of foundations. It involves a knowledge of the applicability and the durability of various materials, experience in drainage, and not infrequently an acquaintance with contractors' plant as well as the best way of economically distributing structural loads, for which expert knowledge engineers are usually given credit. The variation in London soils and subsoils is well described in a pamphlet written by Mr. Horace B. Woodward, F.R.S. So much of the top soil with which foundations are concerned is of an artificial character, that

ONLY ACTUAL EXCAVATION CAN DETERMINE the true nature of a site. Geological maps furnish standard information respecting the natural lower strata, but possess very little value as regards the mixed character of the top soil. Made ground may be 1ft. to 25ft. or more in thickness. At the Bank of England there were 22ft. of made ground resting upon 4ft. of gravel. Some of the made ground is of ancient date, and preserves relics of Roman occupation, but in some parts the subsoils have been excavated for ballast or gravel as at Kensington, or for brick-earth as at Highbury, and the pits filled in with rubbish. A rock which forms an excellent and unchanging foundation in one situation may prove a dangerous foundation in another. Thus, chalk forms a good limestone foundation in certain positions, but when it dips towards a slope or a cliff, with an outcrop of the gault or other underlying clay, it is a very unsuitable foundation for any building, as the landslips of the Isle of Wight and of the Dorsetshire coast bear witness.

CHALK IS SUBJECT TO DISSOLUTION

by the action of carbonated water, whereby comparatively wide cavities become formed in its surface, which may be wholly or partially filled with gravel and sand, and cause inconvenience. In the same way to be partly on gravel and partly on clay or brick-earth, to be on or over the margin of an old excavation since filled with rubbish, may lead to trouble. Where foundations are carried down into clay, the excavation may form a tank, into which the water from surrounding gravel may accumulate. The variations in the upper soils of the metropolitan area may be illustrated by the following records:—At the Chelsea Barracks, boring through made ground and running sand, shows the clay to vary in depth below Trinity high-water level, which is 12ft. 6in. above Ordnance datum. In 1895 a return of the burial grounds in the County of London, with a statement of their size, ownership, and condition was prepared for the London County Council by Mrs. Basil Holmes, from which it appears that there are 362 burial grounds existing in the County and City of London, of which 321 are disused. Of this number 90 are employed as public recreation grounds, and the remainder are closed. Prior to the passing in 1884 of an Act to prevent the erection of buildings on burial grounds, about 100 to 150 graveyards had been entirely built over, appropriated as sites for railways, or annihilated by new roads. Her Majesty's Stationery Office Waste Department stands on a site in Earl Street, Westminster, formerly used as Hartley's marble works, but originally the site of the plague pits connected with the Tothill Fields pestfield, of which area Vincent Square now remains open as the playground of Westminster. The pesthouses erected in 1642 were not removed until this century. Charterhouse Square, Holborn, is also a part of the site of a burial ground, dating back to the fourteenth century, for the burial of those who died in the

plague of that time. In the County of London the only encroachment now permissible on a disused burial ground is the enlargement of an existing place of worship, although in the City the Commissioners of Sewers have the right, under certain circumstances, to appropriate portions of them for the widening of roads. There are

EXCAVATIONS IN THE METROPOLIS

in which human bones have been discovered on sites which have been dug out, and then filled in with debris from disused burial grounds adjoining, when the latter were used for building, before the passing of the Disused Burial Grounds Act (47 & 48 Vict.). The above report, which is accompanied by a map, definitely fixing the position of old burial grounds, is therefore of great value. A boring made in Tallis Street, on the Victoria Embankment, showed the following strata:—(1) 1ft. 6in. ballast, dirty; (2) 6in. green sand, wet and dirty; (3) 2ft. peaty clay; (4) 6in. green sand; (5) 5ft. 6in. peaty bog; (6) 9ft. running sand; (7) 4ft. clean ballast resting at a depth of 23ft. below the ground line upon blue clay. A boring at Highbury New Park gave (1) 2ft. made ground; (2) 18ft. loam; (3) 9ft. sand; (4) 4ft. peat; (5) 8ft. gravel and sand. A boring at Peckham gave (1) 3ft. gravel; (2) 14ft. loam and sand; (3) 3ft. gravel. At Kensington, the soil is described by Mr. W. Bennett Rogers, in a paper read before the Institute of Estate and House Agents, "to be mostly a rich dark loam; secondly, a silicious gravel from 5ft. to 10ft. in thickness; and, thirdly, a strong leaden-coloured earth known as blue clay." The foregoing observations show that while

TRIAL BORE-HOLES SHOULD ALWAYS BE MADE

before designing a foundation, to ascertain the character of the subsoil, care must be taken not to calculate upon uniformity. Thus at the Admiralty extension new buildings forming block 2, now in course of erection by Messrs. John Mowlem and Company, one of the bore-holes upon the south-west side of the old buildings showed the clay to be about 29ft. 6in. below the surface of the ground, while actual excavation proved the dip of the clay to be such that in the execution of the new building it became necessary to underpin the north-west corner of the old building at the deepest part, 42ft. below the ground. The strata in the bore-hole referred to gave about 18ft. (average) made ground, 2ft. ballast, 5ft. dirty sand, 2ft. 6in. clean sand, with 2ft. running sand and slurry, making a depth of 29ft. 6in. to the clay. The old walls of the Admiralty premises were found to be built upon oak sills. These were removed where underpinning was necessary, so as to build and pin up with solid brickwork. There being two floors below the ground in the new building, a concrete retaining wall has been constructed completely round the exterior below the ground and joined up to the underpinning work; the whole site being covered with concrete 6ft. thick, thus forming a huge tank of an average inside clear depth of 20ft., in which the basements are built. The underpinning to the old wall consists of brickwork 4ft. 3in. thick and 14ft. to 20ft. deep, below which concrete 6ft. deep, with set-offs of 12in. on one side are inserted to a width of 5ft. 3in. for the upper portion of 3ft., and a width of 6ft. 3in. for the base or lower portion of 3ft. Messrs. Leeming and Leeming are the architects, who also designed block No. 1, forming the new Admiralty buildings facing St. James's Park, the foundations for which are likewise somewhat appropriately placed in a dry dock built upon the London clay at a depth of 30ft. in solid concrete 6ft. thick. At the Hotel Victoria in Northumberland Avenue, Mr. Henry L. Florence, the architect, states that this building has a frontage of 300ft.: 38ft. 6in. made ground clay and gravel mixed, 4ft. gravel and sand, 6ft. rising sand, 2ft. fine ballast, and at a depth of 50ft. blue clay. At the south end the clay was 43ft. down. At the north end 37ft. The front wall was constructed on a concrete bed 9ft. wide. Another bed 15ft. wide carries the two walls of the central corridor. The whole site was surrounded by a similar wall of concrete, about 6ft. wide, forming a species of boxes,

and the whole covered with a depth of 6ft. of concrete, upon which the walls were raised. The spaces between are now probably full of water. At the Grosvenor Hotel, Pimlico, there were 4ft. of made ground overlying 11ft. of alluvium, and 9ft. of sand and gravel. Messrs. J. Grover and Son, Wilton Works, New North Road, N., forward the accompanying description of

BORE-HOLES MADE IN PARLIAMENT STREET before starting the trenches. The foundations are Portland cement concrete, and go down to the ballast or to the London clay as described. The concrete was 6ft. and 5ft. wide under external walls, and 4ft. under the interior walls. The site is that of an old creek that ran up to Scotland Yard. When Messrs. Grover were building New Scotland Yard they came across old wharves and barges at about 30ft. below the level of the Embankment. As the water from the land still finds its way through the old channel, the foundation required the aid of pumps.

BORINGS AT MESSRS. GRINDLAY'S BANK.

All depths are measured from basement floor level 22ft. below pavement. The water in all holes, except E, rose 15ft. from surface.

Bore-hole B.

	ft.	in.
Made ground	2	0
Blue clay	4	0
Peat	3	6
Blue clay	4	0
Loam	1	6
Fine sand	2	0
Coarse sand	1	0
Loam	1	0
Ballast	7	0
Total	26	ft.

Bore-hole H.

	ft.	in.
Made ground	2	0
Blue clay	6	0
Peat	3	0
Blue clay	4	0
Peat	2	0
Fine sand	2	0
Coarse sand	3	6
Ballast	0	6
Total	23	ft.

Bore-hole E.

	ft.	in.
Made ground	2	0
Blue clay	6	0
Peat	2	6
Blue clay	4	0
Loam	2	6
Sand	0	6
Ballast	1	0
Loam	0	6
Ballast	6	0
Total	25	ft.

N.B.—Water in above rose to 12ft. from surface.

Bore-hole L.

	ft.	in.
Made ground	4	0
Blue clay	7	0
Peat	4	0
Blue clay	3	0
Fine sand	6	0
Gravel	1	0
Clay	5	0
Total	30	ft.

Bore-hole M.

	ft.	in.
Made ground	3	0
Chalk	6	0
Blue clay	6	0
Peat	4	0
Sand and ballast	5	0
Loam	2	0
London clay	4	0
Total	30	ft.

Messrs. Holloway Brothers, of Battersea, formed a foundation where they encountered running sand upon a site in Parliament Street (the Swan Electric Light premises, near Grindlay's Bank) by driving small piles—7ft.

* A Paper read before the Architectural Association on Friday night.

or 8ft. long and 6in. circular, and pointed—as close together as possible over the whole foundation; then sawing off the tops level, and building a concrete raft 7ft. or 8ft. thick over the whole area.

THE NEW CITY HALL, BELFAST,
designed by Messrs. E. Thomas and Son, architects, Queen Anne's Gate, stands on a piled foundation, the site being a deep stratum of yielding alluvial deposit. Such foundations are common in Belfast, and generally consist of larch or other straight round timber, often 40ft. to 50ft. in length. The custom is to saw off the heads of the piles after driving to a proper and uniform level, and place upon them timber sleepers (as shown in the diagram) to aid the support of a concrete table. Mr. Florence obtained the following section for a building in Victoria Street, Westminster:—(1) 4ft. made ground; (2) 4ft. black peaty silt; (3) 3ft. sand and gravel; (4) 13ft. coarse gravel. At the Army and Navy Auxiliary Stores, the formation at about the same depth was also found to be sand and gravel. A clear stream of water runs through it, in which a chimney shaft was built by the aid of pulsometers and sumps. The area of these premises has a foundation of 5ft. Portland cement concrete all over it, 7lb. lead being used as a damp course.

AT THE NATIONAL BRITISH GALLERY,
Grosvenor Road, designed by Mr. Sidney R. J. Smith, the soil consists of surface earth over peat, under which are clayey bands and bands of sandy clay, all of which were pierced by the foundations until the ballast of the river bed was reached at an average depth of 17ft. to 20ft., and in some parts 25ft. No particular difficulty was experienced. The site is that of the old Millbank Prison, known as the Penitentiary. At the gas works in the Horseferry Road 30ft. of gravel are recorded as having been passed through, and this gravel is frequently water-logged, so that, where foundations of houses pass into it with unprotected basements, the water becomes troublesome during high tides, rising in the cellars of houses built upon such low-lying ground. Alluvial deposits prevail over part of the area, consisting of silt and clay, varying in thickness from 7ft. or 8ft. to a thin crust. The gravel and sand on the site are of considerable thickness. In the case of a clayey subsoil overlying a watery gravel, where the structural loads are not sufficient to warrant extending the foundations through the gravel to the clay, it is well to leave a thin crust of the clayey material over the gravel so as to prevent the water working up through the foundation, which would cause the gravel to work loose.

IN DEALING WITH A LOAMY SOIL
it is quite possible to overload a foundation. Water will drain through a loamy soil that is not spongy. When dry like cheese it does not then contain the argillaceous matter which gives it a spongy character, and which would cause it to run, under pressure, like mud. The following is an example of the use of the brick seating on concrete for piers to a warehouse, built over a good dry compact loam foundation: Concrete footings provide a distribution of weight over the whole area when a sufficient depth of concrete for a footing is put in, because every cavity or unevenness of the ground is properly filled with plastic material. Concrete also is quite as good as brickwork or masonry to bring the work up to the surface under ordinary circumstances, but in the case of piers subject to vibration, brickwork is decidedly preferable. Brickwork also may be used of smaller dimensions than concrete, so that the space occupied is less. Thus, at the Borough Market, Southwark, where the foundations had to be carried down from 22ft. to 24ft. below the ground line, the piers carrying the roof columns were built in brickwork over concrete footings. When stone templates are introduced on top of piers, as is frequently found expedient, it must be remembered that the great thing is perfect bedding of them in cement.

AT THE TOWER BRIDGE,
layers of canvas and red lead were placed between the base of the steel columns and the

granite beds upon which they stand, in order to obtain a uniform bearing over the whole surface. Felt carefully laid under the bearing of iron girders is preferable to sheet lead, unless the pressure is sufficient to crush the lead so as to ensure a uniform distribution of pressure. Portland cement should be used for concrete work under a bed stone. Ordinary lime concrete is long in setting. The centre of the mass of a large concrete block may not become hard for years, where a block made of one part Portland cement to seven parts of other approved ingredients, carefully and well mixed, will safely bear a load of five tons per square foot. According to Mr. Stoney, bricks not of an extra hard description in cement will bear a crushing weight of 521lb. per square inch, or 33½ tons per square foot. Allowing a factor of safety of 6, we obtain 5·6 tons per square foot safe load. Rivington's notes on building construction give brickwork in mortar ½cw. per square inch safe resistance to compression, or 3·6 tons per square foot. The resistance of brickwork to cracking or crushing in a pier is much less than that of the bricks alone. Ordinary stock bricks will stand 8cw. per square inch, or 5½ tons per square foot. Much valuable information hereon was given in the investigations made by three series of experiments on brickwork tests, made for the Royal Institute of British Architects and published in their journal. In the case of the Imperial Institute, bearing plates for the girders, where resting on brickwork, were calculated for 16 tons per square foot of area, but then special bricks of Jennings manufacture, built in cement, were employed.

IN FIXING STANCHIONS OVER A CEMENT BASE
it is necessary to provide ample space for grout. The stanchion is set vertical by means of long and shallow wedges, occupying a depth sufficient to allow 1½in. under the base of the stanchion, and a hole 2in. diameter should be left in its base, as near the centre as possible, not to pour in the grout but to see it rise when the under part of the stanchion is completely grouted up. A temporary trough is formed round the base to receive the liquid grout, and the wedges should not be drawn until the grout has well set. In the case of a roof of three spans, subject to the effects of lateral wind pressure, when supported on side walls with intermediate columns, where the situation did not permit either the addition of buttresses or of anchorage in these side walls, the horizontal reaction of the wind pressure may be taken by anchoring the intermediate columns to a concrete foundation. At the Institution of Chartered Accountants, Moorgate Street, Mr. John Belcher found the ground so unreliable that he adopted the precaution of putting a layer of Portland cement concrete over the whole site 3ft. deep. The result has been satisfactory, no settlements having occurred anywhere. At Kennet's Wharf, upon

THE MIDDLESEX SIDE OF THE RIVER,
near Southwark Bridge, the foundation consisted of 8ft. concrete spread all over the site and increased in thickness under the main walls. The late Mr. G. E. Street, R.A., used selenitic lime in the concrete foundations of the Law Courts. Under some of the walls it was 7ft. thick, and that under the walls of the Great Hall was 10ft. thick. Portland cement concrete rafts, 2ft. thick, have been built under five-story buildings on compact loamy soil over gravel, the concrete being dipped where required to obtain the proper fall for drainage pipes to run over the surface. Another plan frequently advantageous to adopt is to sink piers 12ft. to 15ft. (centres) apart, and 4ft. 6in. square, in pot holes dug out of made ground, and then to form concrete arches over the intervening unreliable ground, with a minimum thickness of 18in. This plan was adopted by Messrs. F. and H. F. Higgs for some premises at Stratford and at Lea Bridge, also for a church at South Bermondsey. In the latter case, 6ft. of soft clay or mud, then 5ft. or 6ft. of peat and 4ft. of running silt had all to be gone through before the gravel was reached, and the concrete piers were here connected by a concrete lintel 3ft. thick, in which steel joists were embedded.

At the Institution of Civil Engineers, 25, Great George Street, Westminster, the foundations to the two party walls upon each side of the Institution building were carried down about 22ft. below the pavement level, that on the west side being 22ft. deep, that on the east side 24ft. The front wall was 25ft. below the paving level. The concrete was laid under walls only, and was about 10ft. 6in. by 5ft. 2in. wide at the east party wall. Mr. Charles Barry was the architect, and Messrs. John Mowlem and Co. contractors. The Institution of Mechanical Engineers,

AT STOREY'S GATE, WESTMINSTER,
stands on what appeared to be a wharf, and the roadway in Princes Street was possibly an inlet of the Thames. The contractors excavated the piling and black earth, formerly, doubtless, faggots, and gradually came to a fine Thames sand at a depth of 23ft. below the roadway, gradually getting coarser until fine gravel was reached at a depth of 28ft. below the roadway, upon which the concrete foundations were laid. The main walls were then marked out and excavated to a mean level of 28ft., the strata gradually developing into a fine gravel, which Mr. Basil Slade, the architect, considered, after sounding, to be a good foundation. On this, concrete composed of blue lias lime and Thames ballast was laid to a depth of 10ft. 6in. and width of 7ft. 6in. Water seemed to circulate through the gravel below a mean depth of 23ft. 6in., and the influences of the tides were felt. A pulsometer pump in a well was set to work, and the trenches drained sufficiently to allow of work being executed; after the concrete was all laid, the water was allowed to find its level. At a depth of mean level 15ft. 6in., a table-top or basement floor was laid, and a layer of Portland cement concrete 6in. thick as foundation of finished floor in granolithic or asphalt. The strata throughout was very even, and the work progressed steadily without difficulty. There are two floors below the ground floor, both of which, the architect states, are as dry as a bone. The damp course and retaining wall lower course was of trowelled Seyssel asphalt. The precaution was taken of putting drain pipes in the concrete below water level, to allow the water to pass freely through the sand and gravel within the main walls.

AT THE SURVEYORS' INSTITUTION,
12, Great George Street, in the new building designed by Mr. Alfred Waterhouse, architect, and built by Messrs. Foster and Dicksee, contractors, the section of strata shows 3ft. or 4ft. of made ground on top, about 4ft. black mud, 6ft. clay and brick earth, clay and sand mixed, and 3ft. gritty sand, below which is the ballast, or London gravel. In some cases the foundations were carried down 18ft. deep, but only where the principal weights of the structure occurred. A concrete (six to one) raft, 2ft. 6in. thick, is carried on continuous concrete walls round part of the outside and under main walls and piers of the building. Continuous concrete about 14ft. deep under the raft, and width 5ft. 6in. to suit the footings of a 2ft. 3in. wall (footings 4ft. 6in. plus 6in. concrete either side = 5ft. 6in.) All timber was removed in lengths of, say, 10ft., 3ft. framings as the concrete filling was carried up. At the British Institute of Preventive Medicine,

CHELSEA BRIDGE ROAD,
the foundations were carried through made ground and clay under, to a depth of 40ft. below street level; under the clay was found peat, and under the peat 5ft. to 6ft. of fine dirty sand—then ballast. A concrete raft, 3ft. 6in. thick (six to one), intervenes between the top of piers and the bottom of the brick footings. The position of the piers under the raft was settled by the cardinal points of the buildings, thus forming a kind of propped-up dining table or platform with several legs. Mr. Dulac, one of the contractors for the Paris Exhibition of 1900, has endeavoured to avoid the labour of excavation and necessity of carting away bad ground; also to save the expense of timbering and trenching by compressing and ramming the soil in the following

manner. With the aid of a steam pile-driver and the employment of rams of various shapes he forms a bore-hole, which he fills with hard substances after each stroke of the ram. Thus, in dealing with a light, friable soil, a conical ram is used, and in some cases a mushroom-headed ram is applied successfully. In this way, by forming holes about 3ft. apart, and forcing the selected material sideways into the ground surrounding the cavity, the soil is consolidated to receive a superstructure. The drop allowed for the ram depends on the nature of the ground, the operations in the case of water-logged soils being aided by the insertion of ashes mixed with quick-setting cement, intended to produce a species of tube or sheath for the passage of the ram in the driving in of further hard substances.

AT VICTORIA STATION, PIMLICO, the engineer to the L. C. and D. Railway, Mr. Roche, states that in recent work they have found good gravel at a depth of 16ft. from the surface, and have dug 8ft. into the gravel without passing through it. At Sion College, upon the Thames Embankment, Messrs. Foster and Dicksee state that in this foundation they went down to the London clay. The method there adopted was to have great pier holes about 8ft. by 8ft. on plan, going right down to the clay, filled up with cement concrete, and from these brick arches carrying the main walls. In cases where partly made ground and partly water-bearing gravel is encountered, a raft of concrete, about 6ft. to 9ft. thick, has been successfully used with a gridiron of steel contained therein. An example of steel construction introduced into a concrete foundation at points where main pressure occurs is the case of the building of a new front to a Congregational chapel.

AT CANNING TOWN, designed by Mr. F. W. Troup, architect, where the foundations had to pass through layers of peat and clay to the ballast below, and where the new front had to be constructed so as to be independent of the interior existing building. At some premises known as Mansfield House, by the same architect, concrete 3ft. thick was laid as a foundation, with 8in. by 3½in. rolled steel joists, having bolts 12in. long at each end, so as to give a tie in the centre of the concrete raft in which they were embedded. Very little excavation was needed. The subsoil consists of layers of peat, peaty clay, and clay to a depth of 15ft. to 20ft., when good ballast is reached. The foundation sunk 1½in. at one corner at the back of the premises, and 2in. and 3½in. respectively at the two corners of the front of the premises, but no cracks appeared in the building generally, and the sinking appears to have gone on as the building rose. One corner of the building in front overhung about ½in., but the other parts of the building appeared to remain quite vertical. At the back of the premises, the top of the concrete, which was laid 9in. lower than in the front portion, was 18in. above the natural level of the ground. It is natural that the lower down the river we go, any foundation work becomes more troublesome than is generally experienced in up-river sites. In

(To be continued.)

FOUR stained-glass windows have been erected in St. Michael's Church, Stone, Birmingham.

A NEW CHURCH, seating some 600 people, and costing about £4000, is being erected at Winton, a suburb of Bournemouth.

A NEW organ has been constructed in Lisnakea Parish Church. The builders were Messrs. P. Conacher and Co., Huddersfield and Dublin.

PLANS have been passed by the Doncaster Corporation for a new theatre to be erected by Mr. J. W. Chapman on the site of the present circus and music-hall in Station Road.

THE County Hall, Lewes, is to undergo alteration. The seating arrangements of the Council Chamber are to be improved, and the East Sussex County Council, who are to carry out the work, propose to purchase, for £3500, some property adjacent to the Hall, with a view to its ultimate enlargement.

THE CONSTRUCTION OF TOWN BUILDINGS.*

BY HOWARD CHATFIELD CLARKE, F.S.I.

THE following remarks are mainly devoted to the planning and constructional side of buildings, but I desire to say that I am of opinion that, although a man must devote a large share of his attention and time to such matters, they in no way supersede his work as an architect, but rather help him in giving his buildings architectural character. I propose to consider town buildings from the point of view (1) of construction, (2) of materials, and (3) last, but not least, of cost. For dealing successfully with buildings like city banks, offices, warehouses, showrooms, and schools, regard must be had to

- (1) Simplicity of plan and arrangement;
- (2) Ample lighting to all parts;
- (3) Good means of ventilation and warming;
- (4) Good sanitary accommodation and drainage;
- (5) Protection as much as possible from fire; and
- (6) The employment of suitable materials for the purposes for which the premises are intended.

I know full well how the difficult limitations of confined situations, poor frontages, and numerous awkward angles, sites dominated by ancient lights and surrounded by defective party or other walls, militate against the realisation of ideal requirements; but it is exactly at this point that the experience of a professional man comes into play, and gives him his opportunity of showing how all these and many other difficulties may be overcome.

CONSTRUCTION.

How far do modern methods of construction forward these objects? I have no hesitation in saying that, upon the whole, they do so to a very large extent. In former years town warehouses were built with extremely thick walls, floors of low elevation, with die square timber uprights and wooden beams supporting them, low windows with cast-iron frames, and basement floors laid on the ground, with no provision for keeping back damp, and with no proper sanitary arrangements. As for their external appearance, the least said the better. Doubtless there are many such buildings remaining in Manchester, as there are in the City of London, especially that part of the City near the river. What is the case, however, to-day? All well-designed warehouses are built with as little unnecessary brickwork as possible, and no internal walls where they can possibly be avoided; with floors of fair height and unencumbered by posts or columns, as far as is practicable, and with proper lavatories to the open air in more than one floor of the premises. Our fifth requirement as named above (the protection of a building from fire) opens up the extremely large subject of

WHAT IS A FIREPROOF BUILDING?

and with it the laws and regulations under which we have to work. This subject will be fully dealt with in the Paper which Mr. Blashill has prepared for this meeting, but I may be permitted to refer to it very briefly here. In London we practitioners have all been sent to school again in a large measure by the London Building Act of 1894, which came into operation on January 1st, 1895, and superseded the Act of 1855. A short reference to the new Act as it affects the construction of buildings will, I hope, not be out of place here. Buildings under this Act are classed under four heads:—Dwelling houses, domestic buildings, public buildings, buildings of the warehouse class. Among the regulations set forth, applying to "domestic buildings" erected after the commencement of the Act, section 43 provides for sites which have been occupied by a domestic building (at any time within seven years previous to the commencement of the Act) by giving power to erect a new building

on as much land as was previously occupied, if drawings of the previously existing building have been duly submitted to and certified by the district surveyor. This section, I think, is of considerable advantage to building owners, as the district surveyor's certificate is taken as conclusive evidence of the

CORRECTNESS OF THE PLANS,

and therefore of the old buildings existing upon the site. Under section No. 47 no building is to be erected to a greater height than 80ft. without the consent of the Council. Looking to the great height of modern structures, I think this regulation a reasonable one. High buildings in towns create cold, draughty, and sunless streets. One of our finest improvements in London, Northumberland Avenue, always appears to me to be spoiled by the excessive height to which buildings have been carried up on either side of it. I regret I have not seen American cities, but the impression given one by photographs is that the extreme height of their buildings does not help either their architectural beauty or their convenience. I believe the

WIDE STREETS AND LOW HOUSES

in East London and the suburbs of the large provincial towns, which allow of the free circulation of air and sunlight, add very materially to the general healthiness of the inhabitants. The section of the Act relating to cubical extent of buildings and the uniting of buildings are interesting:—Buildings of the warehouse class are not to exceed 250,000 cubic feet unless divided by party walls, unless the sanction of the London County Council be specially obtained, and even then the area is not to exceed 450,000 cubic feet. If two or more buildings in one occupation exceed the cubical area above-named they can only be united by openings 7ft. in width and 8ft. in height, such openings being fitted with

TWO WROUGHT IRON DOORS,

each ½in. thick in the panel, at a distance from each other of the full thickness of the wall. The Fire Offices Committee's Regulations exceed the requirements of the Act by insisting on chambers at least 6ft. in the clear being built in brickwork, with, of course, solid roofs and floors and iron doors fitted to these. After a careful survey of the recent great Cripplegate fire I am convinced that both the Act and the Regulations above-named should be varied as regards these iron doors. If openings are allowed to be made at all in a party or two external walls (and it would be a great hardship if they were not), the opening part when closed should be made fire-resisting as much as possible, and this will never be so with such thin doors as above described. Over and over again fire has got through these doors, and

BETTER FIRE CHAMBER DOORS

should, in my opinion, be always specified. The large series of warehouses and showrooms I have just completed in Aldermanbury, City, have numerous connections as described above, but I have fitted these openings with expensive fire-resisting chamber doors made by Messrs. Chatwood and Son, and I believe these doors will resist fire to a much larger degree than those which would have satisfied the surveyors of the London County Council. I have seen a copy of your Manchester by-laws, and I do not discover in them any provisions regarding the size of warehouses, and I am sure we shall all be interested to hear if I am right or not regarding this important point. Section 78 deals with the construction of public buildings, which must be to the satisfaction of the district surveyor, with powers of appeal, in the event of disagreement, to the tribunal to which our Institution nominates a member, and all the members of which are connected with our Society. The 7th and 8th parts of the Act I have not time to refer to in detail, although the latter part, defining

THE RIGHTS OF BUILDING

and adjoining owners, is important. Several new powers are given under this part in addition to those in the 1855 Act, among others the power to deal with party fence walls, the underpinning of adjacent premises (within

* A paper read before the Surveyors' Institution at the recent meeting at Manchester.

10ft. of new buildings) upon terms, and these are, in my judgment, distinct aids to the building owner. In the second schedule to the Act the materials are described which, for the purposes of the Act, shall be deemed to be fire-resisting, and among others we find that oak, teak, or other hard timber, not less than 2in. thick, is allowed for doors and stairs, with 2in. risers, and concrete composed of broken brick, stone chippings or ballast, and lime cement or calcined gypsum when used for filling in between joists and floors. I trust you will forgive me for trespassing upon your time with this very imperfect reference to a very important Act, but I feel it is the outcome of much thought and care, and applies to the construction of buildings in the largest of cities, and that it bears so directly upon the question of protecting property not only from

BAD BUILDING,

but from fire. We, as members of this Institution, will always look back with pride to the part it took in the evolution of this Act of 1894. Not only did we spend nearly £1000 in doing so, but three members of our Council, Mr. Steward, Mr. Cubitt Nicholls, and Mr. Gerrard (the latter two gentlemen unfortunately now no longer with us) gave upwards of thirty days' gratuitous attendance in the committee rooms when the Bill was in Parliament. The great fire in St. Mary Axe a few years since, and the still greater a few months ago in Cripplegate, prove that there is still much to be done towards preventing such awful calamities in the future. The great lesson, I think, to be learnt from both of these fires is that ironwork, unless cased, is the most destructive of all agents. When subjected to great heat, columns and girders twist, buckle, and contort themselves into every conceivable shape, and by so doing wreck the premises they are designed to support. I think it is a question deserving great consideration whether we should not omit from the external walls of buildings all

HIDDEN STEEL OR IRON GIRDERS

and stanchions, and make these walls real walls capable of supporting themselves. We should be returning to a much simpler and, I believe, a safer method of construction, and the space required for thicker walls or tiers of brickwork should not be grudged when necessary for the safety of the building and the surrounding property. If I am correct in this statement, many of the warehouses and showrooms built within quite recent years would come under this dangerous class. After the days of the old brick and timber structures, cast and wrought iron came to be largely used and often left exposed, and therefore formed an element of danger and risk from fire. After a heavy fire like the Cripplegate one, it is useless, in my opinion, to suggest much wider streets in future and fewer and less crowded buildings. The conditions of a town make this impossible, but it is possible to materially decrease the risk of fire by insisting:

- (1) That all party walls are carried up say at least 4ft. above the slope of the roofs;
- (2) That all iron doors in party walls are of a much better description than now specified in the Act;
- (3) That all ironwork, both that exposed and all girders not exposed, are cased with plaster at least half an inch thick;
- (4) That party walls dividing skylights from adjoining buildings are carried up considerably higher than at present;
- (5) That external iron shutters are used in confined well-holes and areas overlooked by premises in several occupations.

In the warehouses in Aldermanbury I have caused every piece of ironwork to be cased with plaster; and, with the fireproof chambers as described above between the various premises, I believe if one portion were alight there would be a good chance of saving the others. One word regarding so-called fireproof floors. Their name is legion, and although I do not profess to have used a tithe of the various patents, I have used many, and

believe a floor filled with good clean coke breeze, mixed in the proportion of five of breeze to one of Portland cement, makes a very rigid, light, and fire-resisting floor. I have drawn out details of such a floor, but I know there is nothing new in it. To the construction of buildings such as banks, flats, or offices, I think the leading requirements we have been considering in detail equally apply, but their actual construction must follow upon the special requirements of each. I always feel

PROPER LIGHTING

to be the most important point. Some years back I commenced to use a special shaft for the lighting and ventilating of basements, trimming the ground floor generally in its darkest parts to enable this to be done. If the walls and slopes are built in white glazed bricks, I find that these areas make the parts in the basements near them practically as good as ground floor offices. The carrying up of all windows in town streets into the floor above that in which they are situated, and trimming the floor, has a most advantageous effect upon the lighting of premises and often saves the

LOSS OF VALUABLE SPACE

caused by the introduction of central well-holes through the various floors. Iron skylights and internal glazed partitions made in metal are also among more modern conveniences for properly lighting our buildings. With regard to the proper ventilation and warming of buildings, both large and small, I feel we have still much to learn. I think it is generally admitted that when an amount of fresh air is introduced into a chamber, adequate to change the air thoroughly, draughts are almost unavoidable. The only simple remedy appears to me to be

TO DISTRIBUTE THE INLETS

as much as possible, not to introduce them at too low a level, and to fit the apertures to them with metal or wood tops with conical-shaped holes, thus diffusing the air. With electric and other forms of fans for extracting vitiated air, this difficulty is largely overcome. For an ordinary room there is no better ventilation than the old-fashioned double hung sash, especially when it is fitted with a deep sill-board for the admission of fresh air at the meeting rail level. Grates fitted with warm air-chambers are a great boon both for winter and summer use, and are largely fitted in London, especially in the Board schools. The "Plenum" system, so much in use in the Midland Board schools, is doubtless also used here in the North. There is no doubt it is more costly to introduce in the first instance, but it ought to be economical in working as regards fuel. The great drawback appears to be the necessity for the constant attendance of the caretaker to regulate the supply of heat required in the various rooms. My fourth requirement of

GOOD SANITARY ACCOMMODATION

and drainage is a most important one in the construction of a building, and I believe it has never received the attention it is receiving to-day. The old fashion of laying drains at the last moment anyhow, and practically with any sized pipes that could be easily obtained, has given place to drains properly laid, easily accessible, well ventilated, and generally made of glazed stoneware. I believe we all owe a great deal to the late Sir Henry Doulton for inventing (certainly for bringing to perfection) this simple but most useful material. The result of the improvement in drainage is shown in the health of the community, as, although our large towns increase so rapidly year by year, the general health is good and death rate low.

THE USE OF IRON PIPES

under dwelling-houses has many advantages, the main one, I think, that the number of joints, and therefore the number of causes for trouble, are largely done away with. The great want of public conveniences is at last receiving proper attention in London, and large, airy, and well-ventilated underground conveniences are now being erected, by the London vestries, fitted with automatic flushing

tanks and the most cleanly of all urinals, the "Stall" urinal. There is still in London strong opposition on the part of some of the water companies to allow water waste preventors to discharge more than two gallons. I am convinced, from practical experience, that this is not enough water to properly flush traps and drains, especially with certain forms of hopper closets, and my opinion is that three-gallon tanks should be in universal use, and that the companies should be compelled to supply water by meter to all public buildings. The increased

USE OF HOT WATER

is a source of trial to even the best lead wastes, and I find that strong iron wastes obviate much difficulty and prevent buckling. I have already considered fully the fifth requirement, viz., the protection of a building as much as possible from fire. The last requirement, viz., the use in construction of suitable materials, alone remains to be considered, and must be disposed of shortly, as I feel I have taxed your patience far too long already. In towns, brick, stone, and terracotta, with a limited use of granite, are our main materials for external walling, and there is a better selection now of any of these materials to choose from than ever before. In town buildings the

USE OF GLAZED BRICKS

is of immense advantage, not only on account of their reflecting surfaces externally, but their sanitary properties internally. The manufacture and use of faience is also one of the greatest modern improvements, giving room for artistic treatment both externally and internally, with a thoroughly practical material as regards resistance to dirt and otherwise. The decay of the stone used in the erection of buildings in towns is a serious problem, and points to the necessity of protecting the material as much as possible from the atmospheric influences which attack it. This can partly be done by carefully jointing and covering exposed cornices and strings with thin lead, but the plain surfaces should be covered with "fluaste," or some similar solution, to further protect them. I am sure we must all be glad to see the further introduction into this country of

GRANITE, THE MOST SUITABLE MATERIAL,

for many reasons, for the erection of our town buildings. I have not time to describe in detail the many additions to our decorative materials for internal use, but the selection is large, and I should say never better than to-day. The cost of building fluctuates to such an extent that it is difficult to give reliable figures, but I append the cost, per foot cube, of some premises I have recently erected. There are

TWO VERY IMPORTANT CLASSES OF BUILDINGS

which time has prevented my describing, either of which would supply material enough for a separate paper. I refer to schools and to dwellings for the working classes. The limited areas in cities have naturally forced architects to design schools in three floors, and hundreds of these are built throughout large towns, and, upon the whole, answer well. There must be, however, a considerable amount of time wasted, in reaching the upper floors, and, if the site will only permit, I believe a separate building for the infants' department and a two-story building for the girls and boys answers very well, and will be found to be rather cheaper in execution. I have lately completed a school of this description for over 1400 children in a London suburb; and the cost of this school, including all boundary walls, cookery kitchen, manual instruction room, caretaker's cottage, &c., works out at £14 10s. 3d. per child. The school is finished with glazed brick dados and buff bricks above throughout, and little plastering except for ceilings has been used. Regarding the

HOUSING OF THE WORKING CLASSES,

immense strides have been made in London during the last thirty years, and many of the City Companies as well as the large trusts, such as the Peabody and Guinness, together with public companies, have done noble work

in erecting healthy and well-built and well-lighted premises. During the last few years the London County Council have commenced to build this class of property, and I am bound to say I think their action in so doing has rather stifled and strangled private enterprise. The Council up to December last had spent over £387,000 in erecting dwellings of this description, providing accommodation for 6600 persons, exclusive of 17 shops, 100 work-shops, 12 stables, and 20 sheds. As, however, the Council are content if they see a return for their outlay of three per cent, you will agree with me that, whether they are right or wrong in so using the ratepayers' money, they practically shut the door to private enterprise upon the same basis. The Guinness Trustees, in their report of last year, put the capital of their fund at £289,456, and state that all their buildings continue to let well; that 7327 persons were living in them; and that the average weekly rent of each room was 2s. 1½d., which includes chimney sweeping and the use of venetian blinds, common room, baths, and hot-water supply.

EXAMPLES OF COST OF BUILDING IN LONDON.

Warehouses in Upper Thames Street. Brick front, wood floors, unplastered walls.	Contents. 117,600 cub. ft. Cost per cub. ft. 7d.
Schools, Campsbourne, Hornsey. Boys' and girls' schools, stock and red brick front, internally walls finished with buff bricks and glazed brick dados, wood block floors, and material stairs. Accommodation for 14,000 children.	Contents. 179,322 cub. ft. Cost per cub. ft. 1s. 1d.
Warehouses in Aldermanbury, for wholesale drapery trade. Fireproof floors, stone front, plastered walls.	Contents. 204,879 cub. ft. Cost per cub. ft. 1s. 1d.
City Offices in Gracechurch Street. Stone front, fireproof floors, stone staircase, and hydraulic passenger lift, faience entrance and passages.	Contents. 176,614 cub. ft. Cost per cub. ft. 1s. 2d.
Residential Flats, South Audley Street, Mayfair. Stone and terra-cotta front, electric passenger lift, fireproof floors, stone staircase, each flat finished with hardwood finishings, parquet floors, and enriched plaster-work.	

At a general meeting of the members of the Sanitary Inspectors' Association, held at Carpenters' Hall, London Wall, E.C., Mr. W. Wilkinson read a paper on "Dangers to Health arising from Defective Sanitation." He observed that defective sanitation, as represented by badly designed structures, inefficient workmanship, and defective materials, produced, amongst other evils detrimental to health, typhoid and enteric and continued fevers, with diphtheria. The habits of the people with respect to cleanliness, and more especially with respect to their care to protect their habitations from pollution by excrementitious matter, were a clear indication of their progress in civilisation. It was incumbent upon the local administration of the law for improving the sanitary condition of the people to show by their manner of dealing with its provisions that they regarded them as the practical fulfilment of the primitive ordinances for personal and household purification. In conclusion, the lecturer expressed the hope that, with reference to the Local Government Board inquiries in all matters relative to sanitation (whether of sewers, scavenging, or outfall works), the time was not far distant when that Board would recognise the work of the Sanitary Inspectors' Association by electing from its ranks a representative to conduct or assist in conducting those inquiries.

THE FALL OF A HOUSE.

FURTHER EVIDENCE ON THE WESTMINSTER DISASTER.

THE Westminster Coroner's Court, presided over by Mr. Troutbeck, with the assistance of Mr. John Slater, architect, as assessor, was occupied four days last week in receiving further evidence on the subject of the disaster at Abbey Mansions, Orchard Street, Westminster, W., where the collapse of the roof resulted in the death of seven workmen. In our last issue we reported the previous proceedings.—John Hammond, a labourer, who was on the building at the time of the accident was now recalled, and in reply to the Coroner, said he could almost swear that the bottom part of the concreting did not crumble or fall away before the other part of the roof. The centering boards were passed up to him quite clean, indicating that none of the concreting had crumbled. He was quite certain that the concreting did not fall first and the girders afterwards.—John Peckham, a carpenter in the employment of Messrs. J. Smith and Son, of Norwood Junction, the contractor for the joinery work, said he was on the roof of the building at the time of the accident, working at the skylight. A few minutes before the accident he noticed that there was a great strain on the jib across the opening, and the block was "squeaking." Something was evidently being raised, but he did not know what. He could not say whether anything was being raised at the time of the accident. He

NOTICED THE BREEZE CONCRETE CRACKING.

There were two or three distinct cracks parallel with the front wall. Just before the collapse he heard the rattling of boards, as if the centering was being struck. In his opinion the striking of the centering had something to do with the falling in of the roof.—Thomas Copping, a carpenter and joiner, stated that the concrete around the frame of the north light was rather soft. The workmen were hoisting by means of the jib on the centre light right up to the time of the accident. He had previously suggested that the hoisting of a weight might, in conjunction with the striking of the centering, have caused the accident. He did not think that the centering was ready for striking.—Leonard Skinner, a labourer employed by Banks's Fireproof Syndicate Limited, said he never found any of the binding girders tied with ropes. So far as he saw the girders were all fixed and bolted together in the ordinary and proper way.—Charles Smith, a labourer in the employment of Mr. Murrell, the roof contractor, and who was one of the men injured in the accident, said he was working on a scaffold immediately under the roof. He and a man named Affleck were drawing the bolts, when suddenly, without warning,

THE ENTIRE ROOF COLLAPSED,

and witness fell on the first-floor window and succeeded in getting on the coping. He could not account for the collapse. The concrete appeared to be "all right;" it was quite hard. The boards came clearly away.—Thomas Stewart, a foreman plumber, deposed that he heard a cracking sound like the crushing of a match-box, and he scrambled to a scaffold. The roof collapsed altogether. In his opinion the concrete was not fit for striking. The witness, in reply to the Coroner, said there were no scaffold poles across the centre skylight for hoisting purposes.—The Coroner pointed out that that was a distinct contradiction of what other witnesses had sworn to.—The witness adhered to his statement, adding that the jib referred to was erected after the collapse.—Henry Alfred Penfold, a scaffolder, said he was on the sixth floor striking the scaffolding when he saw the hoist go to the front, and everything fell from the roof on to the sixth floor, and thence to the basement. He believed that the poles forming the jib were erected by the contractors for the stone-work.—William Aspinall, a stonemason, said that at the time of the accident he was on the

staircase between the sixth and seventh floors, and the first thing he noticed was the pier falling over towards him. It then suddenly collapsed. He had no doubt whatever that

THE PIER COLLAPSED FIRST

and that the roof followed it. He and his mates hoisted material with the aid of a snatch block attached to a scaffold pole passed through one of the back windows. It was not near and in no way connected with the brick pier, so that any strain which was caused would not affect the pier.—Frederick George Gander, a scaffolder, who was on the sixth floor, said he noticed dust flying up above the pier, and immediately afterwards the pier "buckled up" about the level of the sixth floor. He came to the conclusion that the buckling up was the result of too great a weight being placed on the top of it. The pier stood without support, except that there were iron joists in it, and there was nothing in the middle to steady it.—Similar evidence was given by other workmen, and then Edward John Thorp was called. He said he had a contract with Mr. Reikard for the brickwork at £4 a rod without scaffolding, and £6 a rod with. That was for labour only. He did the whole of the brickwork of the south block. He did not work on the brick pier himself. The wall was built first. The footings were put in for a 2ft. 8in. wall, but the wall was reduced from off the top of the footings to 18in. The pier was built up to the level of the fifth floor five bricks by two-and-a-half bricks thick. From the fifth floor to the roof he reduced the dimensions to 3ft. 9in. by 1ft. 10in. He altered it after a conversation with Andrews, who agreed with him that the pier would be stronger built that way. Three girders ran from each floor to the pier. There were six large templates in the pier, and hard stock bricks and cement were used in its construction, not mortar, as was stated by Collins. He did not know where the bricks came from, but no soft bricks were used in

THE CONSTRUCTION OF THE PIER.

It was not true that part of the pier was erected on a template. He attributed the collapse to the fact that the concrete was not properly set, so that when the centering was removed a sheet of concrete between the lacing joists, about 23ft. in length, caved in against the top of the pier, which was the weakest point, and pushed the pier over. He saw the concrete half an hour before the accident, and he did not think it was in a fit state for the centering to be struck. Concrete of that thickness should be laid at least twenty-one days to be thoroughly reliable. It was untrue that soft bricks, unfit for use, were used inside the building. He never saw a job better supplied with bricks.—Other workmen having given their version of the disaster in corroboration of previous testimony, the next important witness was Edward D. Drury, the district surveyor, who said he received notice of the proposed erection of Abbey Mansions in March, 1896. He considered the plans, and wrote the result of his inspection on August 21st. A question had arisen as to whether the building was to be used for domestic purposes, which would have necessitated the reservation of an open space in the rear. That accounted for the delay. He wrote to Mr. Pawley, the architect, pointing out the requirements of the Building Act. It was finally settled by the Building Act Committee of the London County Council. Amended plans were afterwards shown to him by Andrews, and witness found they

COMPLIED WITH THE TERMS OF THE ACT.

He saw no detail plans. He had no powers with regard to the brick pier. If he considered a pier to be dangerous he could only report it to the London County Council after it was built. He would have control only over cross, external, or party walls. The Building Act said nothing about brick piers. He last visited the building on March 16, when he found that it exceeded the limit allowed by the Act in the height of the front wall in Orchard Street. He called Mr. Reikard's attention to the irregularity, and Reikard wrote on March 25 informing witness that the building was vested in Her Majesty's Government, and was, therefore, under section 202, exempted from the pro-

visions of the London Building Act. Witness had no control over girders unless they carried a wall. Girders leading to a pier would have nothing to do with him. If a story was constructed in a roof with the floor more than 60ft. above the street it must be built entirely of fireproof materials. The roof of this building did not come particularly under his notice.

THE BRICKWORK WAS VERY GOOD,

and the pier was made of stock bricks and cement. It was quite impossible for 1000 soft bricks to have been used without witness or his assistant seeing them. Section 146 of the Act defined his duties. He could not call attention to a dangerous building until it was erected. After the collapse he procured a sample of the concrete, and found that it was wet, but he did not think that it had been badly mixed. The moisture would add materially to its weight. He saw no concrete that could be crumbled with the hand. If the girders had remained steady and in their place he did not think the concrete could have fallen. He was of opinion that the pier was carrying two tons more than a safe load, which he calculated would be about forty-five tons. He had two theories as to the cause of the disaster. The first was that the centering was struck too soon, and that the concrete fell in consequence and levered the pier over; but that theory had been demolished since he had been in Court. He was of opinion that the pier broke because it was not thick enough. In reply to Mr. Avory (who appeared for Mr. Pawley, the architect), witness said the safe weight-bearing limit of the pier was 45 tons, and he estimated that six times that weight, or 270 tons, would crush the pier at its base. Centering ought not to be struck until the concrete was dry, but if the concrete was made wet by rain it would be comparatively unimportant. He could not tell from his examination of the fallen pieces of concrete whether the moisture which existed was produced by rain. He did not think that everything that happened would be accounted for by a large lump of concrete falling from the roof and striking one of the girders. His reason for that was that the whole of the pier as well as the 18in. wall was demolished. In his opinion it was

THE PIER THAT GAVE WAY.

Either the pier gave way and took down the girder, or the girder fell and knocked down the pier. Taking into consideration the thickness of the concrete, seven days would be the minimum safe time for it to set before the centering was struck. He thought that the bearing of the carriage girder of the sixth floor was so bad that a comparatively small weight would knock it off. The pier was built in Portland cement.—James Lillywhite, recalled, said on the day preceding the accident he was in the basement of the building, and his mate drew his attention to three cracks in the brickwork of the pier about 4ft. or 5ft. from the ground. The cracks were 7in. or 8in. long. The largest would admit part of a trowel.—Mr. C. J. C. Pawley, the architect, recalled, said the pier, which was to be 2ft. 3in. by 1ft. 6in., was to run up from the first floor level to the seventh floor—about 78ft. Provision was made in the basement for a stanchion. Detailed plans were prepared by Andrews, the builder's foreman. The dimensions of the pier being given as 2ft. 3in. by 1ft. 6in. was

THE RESULT OF A DRAUGHTMAN'S ERROR.

It was true that the plan was given to the contractor to work from. Witness designed the roof, and he considered himself responsible for the pier. The stanchion, though desirable, was not put in because the machinery occupied the space where the footings were to be. There was no room for it. He gave his assistant strict instructions not to allow the centering to be struck, having in his mind the possibility of an accident. He still thought the collapse was due to the falling of the concrete. He did not know the dimensions of the pier as constructed. He did not remember receiving a single complaint from anybody about the construction of the building or the materials. The witness had built many buildings similar to this. The inquiry further adjourned.

Professional Items.

AULDEARN.—The designs of Mr. John Robertson, ecclesiastical architect, Inverness, for the entire renovation of Auldearn Parish Church, have been approved of, and the successful contractors for the various works are:—mason work—Fraser and McIntosh, Inverness; carpenter work—William Brooman, Nairn; slater work—A. C. Fraser, Inverness; plumber work—John Stewart, Grantown and Nairn; painter work—John Campbell, Nairn; and heating—M'Kenzie and Moncur, Edinburgh. Auldearn Church was built in 1757, and is, says the statistical account, "still a substantial though an ill-constructed building. The length is quite out of proportion to the breadth, and the whole building affords a specimen of the little attention formerly paid in the erection of churches both to the acoustics of the building and the comfort of the congregation." According to the designs prepared by the architect and adopted by the Committee in their entirety, the church is to be entirely gutted out and renewed. The interior is to be designed in Early Gothic, both sides of the edifice being divided by a screen of moulded pillars on which will rest grained arches, with enriched main arched couples, filled in with tracery, the ceilings, being the main couples, being divided into panels by moulded ribs and enriched corbelled cornices. The reredos behind the pulpit is to be of a very rich character, with a series of arched and cusped recessed panels, divided by moulded buttresses, having traceried triplet gables with carved terminals over. Over the reredos is to be placed a traceried circular window to be filled in with stained glass. Both gables of the church are to be finished with a series of clustered pillars, over which will be grained arches to match those on each side of same. A Communion Table is to be provided, designed to match the character of the pulpit.

BANGOR.—A large number of private houses, principally villas, have just been and are about to be finished in various parts of the town, notably on Hamilton Road, Ballyholme Road, and Seaciff Road. Plots of ground have been taken on which houses are to be erected in time for next summer. A prominent inhabitant has secured an extensive plot on one of the best sites of the township, and it is his intention to erect a number of modern villas. Then a belfry and spire are to be erected on the parish church, and the work of construction of the new Hamilton Road Presbyterian Church has lately been commenced. The Governors of the Bangor Endowed Grammar School are at present engaged in the consideration of a scheme for the erection of new and more commodious school premises. Turning to public works, extensive sewers are at present being laid along Bridge Street and Sandy Row, and the thoroughfare is being considerably widened at a narrow part along the Seaciff Road. The work of laying mains for drainage purposes is about to be begun between Church Street and Brunswick Road under the railway line.

BEDFORD.—Mr. S. Foster, contractor, has just completed an Elizabethan mansion for Mr. W. H. Allen. It is built of Weldon stone and red local tile roof, while all the finishings inside are of oak, and special care has been given to the decorations. Stables, lodges, and lawn buildings have all been erected. The buildings are all lit with electric light, which is generated upon the premises. The whole of the buildings have been designed and carried out under the personal care and direction of the architect, Mr. George P. Allen, of Adelphi Chambers, Strand, W.C.

DEESIDE.—A large hydropathic establishment is to be erected on the north side of the Dee, about half a mile west of Murtle Station. The total cost is estimated at £12,000. Mr. Robert G. Wilson is architect, and the contractors are:—Mason—Mr. John Morgan, Aberdeen; carpenter—Messrs. Leslie and Hay, Aberdeen; slater—Mr. A. Kinkaid,

Cults; plasterer—Mr. George Leith, Aberdeen; plumber—Mr. A. B. Robertson, Aberdeen; painter—Mr. Edward Copland, Aberdeen.

DEWSBURY.—The foundation-stone has been laid of a chapel to be erected on the south side of St. Matthew's, Westtown. The addition to the church has been designed by Messrs. Holtom and Fox, architects, Dewsbury, and the style will be that of the main building. Some important buildings are about to be erected in Dewsbury. The structures include a bank, which will have frontages in Northgate and New Bridge Street, and is from designs by Mr. John Lane Fox, of Dewsbury. The elevation of the lower story will be of polished grey granite, and the two stories and attic above will be of ashlar from the Holmfirth quarries. On the east of this pile, occupying the north side of New Bridge Street, are to be erected several shops, the architects being Messrs. Holtom and Fox. The buildings will extend to Cloth Hall Street. On the opposite side of New Bridge Street Messrs. D. and W. Thornton are building a shop and workrooms, and near the east end of the same thoroughfare a large warehouse is in progress. A more important project is about to be undertaken by Messrs. Kirk and Sons, architects, for Mr. Knowles, viz., the erection of an arcade containing sixteen shops and offices, and extending from New Bridge Street to the Market Place. The plans are being considered by the Building Committee of the Corporation.

GLOUNTHAUNE.—The new parish church at Glounthaune (Queenstown Junction) is 102ft. by 22ft. 6in. wide; two aisles, 94ft. by 11ft. 3in., and a sacristy of good size, at the north side, thrown out from the main building, with a stairs approaching floor over same. The ridge of the nave is 45ft. over the floor of the church. The nave and aisles are separated by pointed arches of a high pitch, springing from octagonal moulded caps of Portland stone, resting on red polished granite columns and Portland stone bases. Over the arches are the clear strong windows arranged in couplets of quatrefoil design. To the right and left of the sanctuary are the side chapels, lighted by rose windows, worked in chiselled limestone. The side aisles have couplet windows of limestone with cupped heads. The main entrance doorway is directly under a canopy, which serves to emphasise it, and has a very bold appearance, the deeply recessed jambs of same having large double chamfers finished with pyramid stops, label mould to arch, terminating on moulded blocks. On the top of this gable is a limestone belfry, surmounted by a cross. The church will accommodate about 1000 persons. The architect is Mrs. S. Hynes, South Mall, Cork, and the builder Mr. J. Coffey, Middleton. The benches are the work of Mr. John Barry, Queenstown Junction, and the tiling was executed by Mr. Nicholas Sisk, Evergreen, Cork. The high altar is the work of Mr. Davis, sculptor, Cork. It is composed of Sicilian marble, variegated. In the chancel are three stained glass windows, the work of Lawes and Westlake, London.

HULL.—The foundation-stones of the new Congregational Church, which is to be erected on Princes Avenue, Spring Bank, have been laid. The new church is cruciform on plan, having a nave of 82ft. in length by 28ft. in width, with north and south transept 18ft. 8in. and 15ft. 6in. in depth respectively, and 23ft. 6in. in width. The buildings are designed in the late Gothic style, and the church will be seated so as to accommodate 585 persons on the ground floor and sixty-eight in the gallery.

HUNCOTE.—A new Sunday school is being erected in connection with the Baptist Chapel at Huncote. The preparation of plans was placed in the hands of Mr. F. Clarke, architect, of Leicester. The building is designed on a Gothic model, with a green-slatted roof; and the windows and doors are to be ornamented with dark red quoins.

LINCOLN.—The foundation stones of the new Sunday schools intended to be added to the Bailgate Wesleyan Chapel, Lincoln, have been laid. The architects are Messrs. W. Mortimer and Son, and Messrs. Halkes Bros. are the contractors.

LIVERPOOL.—The Great Central Railway Company has just opened its new receiving warehouse and offices in Hood Street. The warehouse has been constructed on the most modern principle, is three stories high, and has an excellent basement; it is fitted with hydraulic cranes, hoists, and all other necessary appliances for the speedy and safe handling of all kinds of merchandise; and is lighted throughout by electricity.

NEWCASTLE.—A large building scheme is contemplated here. The Northern Allotments Society has purchased two large building estates on the western confines of Newcastle—extending from the West Turnpike beyond the Workhouse right across to and including Fenham Hall, and further extending to and including the Mill Inn at Cowgate. On this elevated ground it is proposed to lay out a large building estate of better class houses and cottage villas. The most effective precautions will be made to render it one of the best built and pleasantest as well as healthiest suburbs of the city.

NOTTINGHAM.—Turkish Baths have been erected in Upper Parliament Street, Nottingham. The building is divided into two wings for ladies and gentlemen, each wing being approached by a separate staircase. The scheme of decoration, as well as the style of the building, is Moorish. The floors throughout are fireproof, and in the hot rooms and cooling rooms they are of vitreous glass Mosaic. The walls in the hot rooms, which are spacious and lofty, are of marble dado, surmounted by buff terra-cotta, and the cooling rooms are panelled in the style of the Georgian period. In the shampooing rooms the arrangements are contrived upon the most modern plan. There are heavy marble slabs, needle baths, showers, douches, and Russian steam baths, while the shampooing basins are of aluminium. The needle baths, which are, like the shower baths, recessed under Moorish arches, are provided with ascending and descending douches and descending showers. Sitz baths are also provided. At the top of the building is a steam laundry. The basement contains the boiler and engine room. Messrs. Brewill and Baily, of Nottingham, are the architects, while the fittings have been furnished by Messrs. Bradford and Co., Manchester.

PERTH.—New offices are to be built for the General Accident Assurance Corporation in Tay Street and High Street, Perth. The building will be one of the architectural features of Perth. The designs are by Mr. George P. K. Young, Perth. The ground floor will be almost entirely taken up by a large office of one apartment. On the first floor will be a lesser office for the use of the fire department and the manager's and directors' private rooms. On the third floor are additional clerks' rooms, typewriters' room, &c., lavatory and cloakroom accommodation being provided on each floor. The safes and storerooms, boiler, engine, and dynamo chamber will be in the basement.

PETERHEAD.—Plans of the new police buildings for Peterhead have been prepared by Messrs. W. Henderson and Son, architects, Aberdeen. The front elevation, facing Merchant Street, will be of red and light-coloured granite, with clean-dressed pilasters, shelf mouldings, cornice, and centre pediments, the base work being of rock-faced work, and the remaining parts of coarse-dressed work. In Tolbooth Wynd there will be an elevation, extending over 90ft., of hammer-blocked red granite. The main entrance is from Merchant Street, and it leads into the administrative department, where there are a charge room, waiting room, inspector's room, with a passage

to the cells, cloak room, and lavatory accommodation. Behind these are the muster room and quarters for four unmarried constables, comprising sleeping rooms for each and a kitchen for general use. There are seven cells—one of which is double—all lighted and ventilated in accordance with the requirements of the Prison Commissioners. The cells are to be lined to the height of 4½ft. above the floor with glazed bricks, to secure the utmost cleanliness. Lavatories are to be provided for the prisoners, and the cells will be heated by hot-water pipes from a boiler in the back court.

ROMFORD.—The Urban District Council of Romford, having decided to erect public swimming baths in Mawney's Road, Romford, invited designs from architects, and have selected for execution the design submitted by Messrs. Harrington and Ley, of 108, Fenchurch Street, E.C.

ROTHERHAM.—Four almshouses have been built on a site located off the Broom Road. In each there is a parlour, bedroom, larder, and scullery on the ground floor, while there is a washhouse common to all. Mr. J. E. Knight, of Rotherham, has been the architect, and Mr. S. L. Pilgrim, of Rotherham, the contractor.

SHEFFIELD.—The new Corporation baths for ladies in Glossop Road have been erected from the designs and under the superintendence of the City Surveyor (Mr. C. F. Wike). There is a spacious new swimming bath for the exclusive use of ladies, with thirty-five dressing boxes, ten slipper baths, and two foot baths. The swimming bath is 25ft. wide and 75ft. long, with a varying depth of from 3ft. 6in. to 5ft. 6in. It is lined with glazed white bricks, and the divisions between the slipper baths are of slate instead of wood. This is much better from a sanitary point of view, as slate can be thoroughly cleansed. The building is of brick with stone facings. At the Glossop Road end of the building there will be a large window of stained glass. The contractor for the building is Mr. George Webster, of Intake Road, whose contract amounts to about £5200. The heating and engineering work has been carried out by Messrs. Bradford and Company, Crescent Ironworks, Salford.

STARBECK.—The North-Eastern Railway Company propose to carry out additions and improvements at the passenger station at Starbeck. So far as the down platform is concerned, it is intended to slightly re-arrange the existing waiting rooms, to build a new first class gentlemen's waiting room, and to provide various other conveniences. On the up platform it is proposed to do away with the existing buildings, and erect a new booking office, new waiting rooms, ticket collectors' and porters' rooms, &c. Additional shelter will also be afforded passengers by extending the roofing over each platform to 200ft., and a portion of the platform on the down side is to be increased in width by 12ft. to make it correspond with the remainder of the platform.

WREXHAM.—The foundation stone of a Congregational chapel being built here has been laid. The plans were prepared by Messrs. Ingall and Son, the contract being secured by Messrs. Lewis Brothers, of Wrexham. The whole of the buildings occupy a commanding site at the junction of Salisbury and Percy Roads. The organ and pulpit will be placed in an apse at the end of the chapel, where are also placed the minister's and deacon's vestries and a kitchen. The chapel will be heated with low pressure hot-water pipes, and effective ventilation is being provided for. The wood work and open roof timbers will be pitch pine and best red deal, stained and varnished, and the building, which is of simple Gothic design, will be faced with Ruabon brick and stone dressings. The building will be surmounted by a tower and spire, rising to a height of 80ft.

Under Discussion.

LIGHTING OF THE HOUSES OF PARLIAMENT.

A limited number of the members of the Civil and Mechanical Engineers' Society were invited, a few days ago, to inspect the lighting and ventilating works of the Houses of Parliament. The members present were: Mr. Herbert Coward (president), Mr. Cooper Penn, Mr. Twelvetrees, Mr. W. M. Binny, Mr. Booth, Mr. T. C. Walrond, Mr. Hanssen, and Mr. Percy Field. The members were conducted over the various departments by Mr. Palfreeman, resident engineer.

NORTHERN ARCHITECTURAL ASSOCIATION.

The members of this Association held an excursion meeting on Saturday, May 21st, when the following buildings were visited: Sandford Board Schools; Grand Theatre, Heaton; Raby Street Board Schools, and the adjacent Presbyterian Church.—The Council announce that the usual prizes will be given for drawings made during the summer of this year by students and associates (not in practice), and who have not attained the age of twenty-five years: a first prize of £2 2s., and a second of £1 1s., for the best set of measured drawings; also a first prize of £2 2s., and a second of £1 1s., for the best set of sketches.

BRISTOL SOCIETY OF ARCHITECTS.

The last ordinary meeting of the Bristol Society of Architects for the present session was held at the Fine Arts Academy, Clifton, when a paper on "Plumbing," by Mr. George Tuckey, was read by the President.—The conditions of competition and instructions to students for prize drawings were read, and it was decided to print the same for circulation, together with a letter received from the Principal of the Merchant Venturers' Technical College, stating that it was proposed to hold a special course of lectures for students desirous of presenting themselves for the intermediate examination of the R.I.B.A.

EDINBURGH ARCHITECTURAL ASSOCIATION.

The annual meeting of the Edinburgh Architectural Association was held in the Royal Institution, Princes Street, Mr. Thomas Ross, the President, in the chair. The report of the Treasurer showed that the total membership of the Association stood at 286, that the total income for the year amounted to £135 10s., and the payments to £132 4s. 11d.—The Secretary stated that in connection with the memorial which they had presented to General Sir E. Murdoch Smith, suggesting that the Museum of Science and Art might remain open between four and six o'clock on Saturday afternoons—which two hours would be very useful to architects, artists, and others for sketching purposes—he had received a communication from Sir Murdoch Smith to the effect that he had submitted the memorial to the Lords Committee of Council on Education, with a recommendation that the request therein set forth be acceded to.—The President intimated that the Hon. Hew Dalrymple, on behalf of the Ayr and Galloway Archaeological Association, had presented the Association with a set of their proceedings, amounting to fourteen volumes, an extremely valuable gift.—Mr. Ross was re-elected president; Messrs. John Watson and James Bruce, W.S., were re-elected vice-presidents; and Messrs. T. Fairbairn, A. Hunter Crawford, and J. Johnston, C.A., were re-elected secretary, excursion secretary, and treasurer respectively.—The President afterwards delivered an address, the subject of which was "Lesser Known Churches of Scotland." Mr. Ross, whose address was illustrated by limelight views, began with the earlier Norman churches, such as Leuchars, Dalmeny, and Tynninghame; next he directed attention to the elaborate church towers at Dunning, Muthill, and elsewhere in the district of the Tay; and dealing, lastly, with later churches, Mr. Ross gave a full exposition of the colle-

giate churches, of which he said there were somewhere between thirty and forty in Scotland, and which were all in the late Scottish Gothic style, and were perhaps the most national works they had, without any affinity whatever to English work.

NATIONAL ASSOCIATION OF MASTER PLUMBERS.

The annual meeting of this Association was held at the Town Hall, Derby, when Mr. J. Beal, of Hull (the president), occupied the chair, and there were delegates present from London, Manchester, Newcastle, Oxford, and elsewhere. The Mayor of Derby (Mr. Ald. Duesbury) welcomed the members to Derby, and said the objects of the Association were very laudable. One of them was to assist people to live happily and comfortably amidst good sanitary surroundings. In this age of progress, when sanitary science was developing so rapidly, higher things were aimed at, and very good work was being done by the plumbers of England. Twenty years hence people would look upon very different plumbing even to that done now, such was the progress of the trade.—The President, in his reply, said that one aim of the Association was to meet the operatives engaged in the business, and, if possible, to avoid strikes and disputes. Subsequently, in his presidential address, he said that although much had been done by the Association, a great deal more remained to be accomplished, and energy, skill, and self-sacrifice would have to be expended before they had secured all that they wanted. He condemned the system of municipal competition in trade, and the merchants selling to outsiders, and said the relations with the operatives were very satisfactory. There had been a few disputes reported, but in nearly all of them the Association had been successful in obtaining amicable settlements.

THE Rotherham Corporation has applied for sanction to borrow £4000 for the purpose of erecting public baths.

A NEW Baptist Chapel is being erected at Scapegoat Hill, Golcar. Mr. Joseph Berry, of Huddersfield, has prepared the plans.

LORD MASHAM has offered to place at the disposal of the Mayor of Bradford the sum of from £30,000 to £40,000 for the purpose of erecting an institute on the site of his old home in Manningham Park, Bradford, which is now public property.

Views and Reviews.

"CHURCH ARCHITECTURE."

This little work—which is of pocketable size—is a simple treatise on the rudiments of Church Architecture from the Roman period to the middle of the sixteenth century. The author has especially striven for simplicity, "so that the young may readily grasp a general outline of one of the most interesting subjects of history." The booklet attains this object admirably, the more so as the letterpress is aided by a series of simple illustrations, which will be found of great service to the reader new to architectural study. After dealing with the architectural styles of the period under review, i.e., Norman, Early English, Decorated, and Perpendicular, the author devotes to each subject a chapter on bells, chancels, rood screens and roof lofts, fonts and pulpits. "Church Architecture," its pretentious title notwithstanding, concisely and comprehensively outlines an extremely interesting subject.

"Church Architecture from the Roman period to the Middle of the Sixteenth Century." By C. B. Fowler, F.R.I.B.A., Cardiff. London: Iliffe and Son, 3, St. Bride Street, E.C. Nutshell series, 6d.

STAGE CONSTRUCTION.

Mr. Edwin O. Sachs has decided to issue a large folio volume, entitled "Stage Construction," on the occasion of the impending Wagner Cycle at Covent Garden, when so many of the Bayreuth methods and appliances will be in use. The increased general interest in the mounting of plays, and the equipment of the stage generally, is the reason for the immediate production of what will practically be a supplement to Mr. Sachs' greater work, "Modern Opera Houses and Theatres," even prior to the issue of the concluding volume of that monumental publication. "Stage Construction" will be profusely illustrated with some 200 drawings, sketches, photographs, and diagrams from the leading stages of Europe, and thus the great stages of the Opera House at Paris, Vienna, Berlin, Budapest, Amsterdam, Christiana, or Munich, as the case may be, will be equally as well represented as the leading stages of the metropolis. In the introduction to the book Mr. Sachs will primarily deal with Scenic Art and the various developments of stage equipment. Mr. B. T. Batsford will again be his publisher.

KEYSTONES.

NEW Council Offices have been erected for the Hebden Bridge Urban District Council.

THE demolition of some of the houses in Church Row, Hampstead, a fine thoroughfare with many literary and artistic associations, has been commenced with the view of the erection of flats on the site to be cleared.

THE London County Council have given an official notification of the withdrawal of their Bill to construct tramways in the Holborn district, in Clerkenwell, Islington, Bloomsbury, Shoreditch, and Bethnal Green. The estimated cost of these extensions was £32,000.

THE directors of the Cardiff Railway Company have considered the tenders for the construction of the new dock on the foreshore at Cardiff, and have decided to accept that of a firm having local connection, though it was not the lowest tender sent in. Certain matters of detail, involving alteration in the specifications, have still to be formally settled. The construction will occupy four years.

PRINCESS CHRISTIAN opened last week Eton House, erected in connection with the Church of St. Mary, Eton, in Gainsborough Road, Hackney Wick, at a cost of £4500. The house has accommodation for nine resident clergy, and is intended for the use of the clergy and old Etonians working in the parish. The building contains twenty-six rooms, including a dining and common room and the private apartments of the residents. An organ has also been erected in the house at a cost of nearly £1000.

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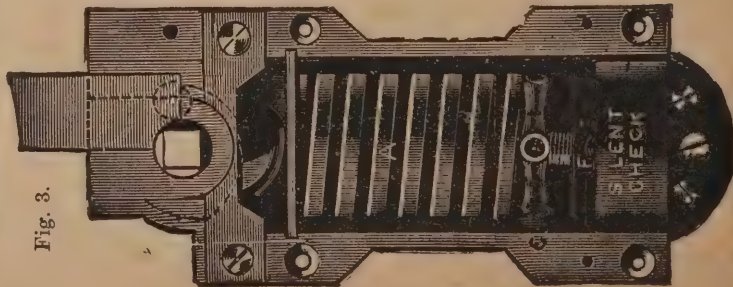
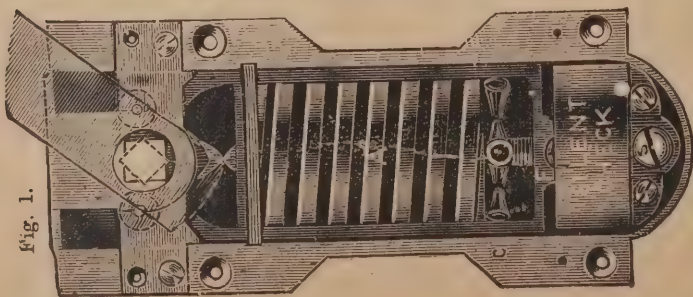
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Builders' Notes.

THE new north block of Admiralty buildings is making very rapid progress. It has attained more than half its full height, and this summer will probably see the work well through. It is just about as large as the other one, but is somewhat simpler in construction, and will cost less. It will be less elaborate in its external decoration, and the interior of it will consist mainly of a comparatively few large rooms for the accommodation of clerks, whereas the first block comprised a good many smaller rooms, some of them of an ornate character and designed for the higher officials of the service. But though many of the rooms will be large—one of them designed for four hundred men—the new structure will comprise no less than about a hundred rooms altogether. When this building is completed there will be a fine transformation effected at this corner in Spring Gardens. At the present time the old buildings and the passages and covered ways connecting the various departments of the Admiralty constitute one of the most intricate and bewildering mazes imaginable.

In the Queen's Bench Division, Dublin, before the Lord Chief Justice, Mr. Justice O'Brien, and Mr. Justice Gibson, judgment was given in the case of *Antisell v. Doyle*. The action was to recover money claimed to be due for work done in connection with the building by the defendant, Mrs. Doyle, of eight houses in Blackrock. The defendant employed Mr. Beardwood to prepare plans and specifications and invite tenders. Mr. Beardwood employed Mr. Antisell, the plaintiff, to make out quantities, and to send out bills of quantities to builders from whom tenders were invited. The case was tried before Mr. Justice Madden and a common jury, to whom the learned judge left the following questions:—Was the employment of the quantity surveyor within the scope of the architect's authority? was that employment ratified by the defendant? was there a limit of authority to the extent of £6000? and was there a custom empowering the architect to employ a quantity surveyor without asking the assent of the intending building owner? The jury answered all these questions in favour of the defendant; but Mr. Justice

Madden, being of opinion that the verdict was against the weight of evidence, declined to give judgment for the defendant. The case came before the Divisional Court on a motion by the defendant for judgment, and a cross motion by the plaintiff that the verdict should be entered for him or for a new trial.—Mr. Justice O'Brien now gave judgment in support of the findings of the jury, holding that it would be monstrous that a person should be called on to pay for the services of another of whom he never heard, and the nature of whose business was to inflate the amount to be paid.—Mr. Justice Gibson concurred, saying that the evidence pointed rather to a practice or habit than a binding custom such as that alleged. The defendant was not liable to the plaintiff, whoever else might be.—The Lord Chief Justice said in his opinion this case should be tried again. His learned brothers, however, thought that judgment should be for the defendant, and it would accordingly be given for her, and she would get the costs of the trial and of the new trial motion.

At the Worksope County Court, before his Honour Judge Masterman, William Hemstall, builder, Worksope, sued James Pilsworth, plumber, Worksope, for £64 17s. 8d., for work done and building materials supplied. There was a counter-claim for £52 for compensation for damages sustained by delay and work unsatisfactorily done. After hearing the evidence, his Honour said the whole of the difficulty had arisen from defendant's non-economical principle of not employing an architect. If he had employed Mr. Allsopp in the ordinary way he would not have made the payments on account without an architect's certificate. The architect would certainly have stopped any work that had been wrongly or badly done. He had come to the conclusion that the defendant had established £10 of his counterclaim, which must be deducted from the plaintiff's claim. He found judgment for plaintiff for the amount claimed, and on the counterclaim gave a verdict for £10; plaintiff to have the costs of the action.

THE Lynton and Barnstaple Railway, just opened, is constructed with a gauge of only 2ft., the same as that of the Festiniog and the North Wales narrow gauge lines. The line starts from the existing passenger station of the South-Western Company, and before it gets out of the town crosses two streets on the level, but all the other roads in its course, and there are over twenty of them, are crossed by bridges in the orthodox manner.

No sooner is it outside the town than the railway commences to rise from the valley of the Yeo on a steady gradient of 1 in 50, till near Parracombe, an elevation of 1000ft. Thence it descends on the same gradient to a terminus just outside Lynton, on the face of the hill looking down into the valley of the Lynn. Needless to say, in such a country the curves are frequent and sharp, and the banks and cuttings numerous and heavy. There is, moreover, one viaduct 50ft. high and 100yds. in length. The total cost of works, buildings—there are six stations, all of them substantial stone structures—and permanent way, ballasted and laid with 42lb. rails, is well under £60,000 or about £3000 per mile.

THE contracts for the railway projected by the Callander and Oban Company between Connel Ferry and Ballachulish have been concluded, and it is expected that the active construction of the line will be proceeded with immediately. The work of the permanent way has been secured by Mr. John Best, contractor, Leith, and the erection of the bridges that are necessary is entrusted to Arrol's Bridge and Roofing Company Limited, Glasgow.

THE St. Pancras Vestry has obtained satisfactory concessions from the London and North-Western Railway Company, in consideration of withdrawing opposition to the Company's Bill before Parliament, which sought, among other things, to acquire eleven acres of land on the south-west side of the Company's railway at Hampstead Road, near its junction with Granby Street, along one side of Mornington Road to Mornington and Delancey Streets, and bounded on the other side by Regent's Canal. This area embraced the greater portion of Park Village East. The Company, at the instance of the Vestry, agree to modify their scheme in several respects. They will not now acquire any of the houses on the west side of Park Village East. The land to be taken on the west side of Mornington Road is, it is said, solely for the purpose of strengthening the retaining wall on that side of the existing railway. Hence only a few feet of garden ground will be absorbed, the houses fronting the road being left undisturbed. The Company agree to construct and maintain a bridge over the railway from Mornington Street to Park Village East, of a width of not less than 45ft. No existing thoroughfares are to be closed until the new bridge is open to traffic. A block of property to the south of Mornington Place is to be utilised for rehousing the workmen displaced by the scheme.

Clayworkers at Copenhagen.

BY ONE OF THE PARTY.

DURING the Easter holidays forty-five members of the Clayworkers' Institute made Copenhagen the centre for their annual spring visit. These foreign trips were started last year by Mr. Greville Montgomery, the proprietor of the British Clayworker, the first visit being to Belgium. This year our brickmakers have gone further afield, and their journey to the northern capital was a complete success. The object was to make the trip recreative as well as instructive, and the main part of the journey was therefore by water. A new Danish boat, "The Fjord," was chartered to convey the party to Esbjerg and back from Harwich, a journey which occupied some twenty-five hours each way. Excellent weather prevailed on both outward and homeward journey, but the intervening days were chequered by constant showers and cold winds. From Esbjerg the trip across the two stretches of water would have been delightful had the elements been propitious—as it was, there was little to be seen for mist and rain. After a long train journey from Korsør, Copenhagen was reached in a thunderstorm, and it was a pleasure to receive the cheerful hospitality of the proprietors of the Hotel d'Angleterre, who placed the big dining hall at our disposal, and in every way laid themselves out for our comfort. At dinner Mr. Montgomery introduced the company to different members of



PART OF ROYAL PALACE OF AMALIENBORG.

would not have disgraced a royal garden party. On the journey back, a visit was paid to

Hamlet's Tomb and the Castle of Cronborg, which gave a little touch of sentiment to an otherwise somewhat prosaic programme of sight-seeing. On Monday, after dinner, we packed off to Odense, a town just halfway to Esbjerg, making the new and now principal hotel—the Grand—our headquarters for the night. The following day, wagonettes conveyed us to a neighbouring brickyard, where were seen the most up-to-date and labour-saving appliances in the country. Back to the hotel, luncheon,

was a complimentary dinner given to Mr. Montgomery on the boat, and the presentation to him of a piece of plate as a memento.

Although dating from the twelfth century, Copenhagen contains few old buildings owing to the extensive fires to which it has been subjected. The drainage system is very unsatisfactory, being difficult to deal with on account of the low level of the ground. The streets are mostly paved with cobbles, but one or two of the important ones are laid with asphalt or wood. The city is lighted by electricity.

A noticeable feature of the buildings is the exaggerated tuck pointing, which is adopted in combination with the English bond; another is the glazed tiles, which are largely used, giving the roofs the peculiar appearance of always being wet; the steepness of the roof adds to the picturesqueness of the buildings.

The most important buildings embrace the present Royal residence, "Amalienborg," situated in the northern part of the city, and consisting of four smaller palaces, originally built by rich noblemen, but acquired by the King after the destruction of Christiansborg in 1794. In the middle of the open space enclosed by these palaces is a bronze statue of Frederick V. Of the four palaces one is inhabited by the King, one by the Foreign Office, one by the Queen Dowager, and one by the Crown Prince. The National Theatre, of which we give an illustration, was erected in 1874, and is situated in Kongens Nytorv.

The Vor Fru Kirke, a modern structure in the form of a Roman basilisk, was built in



THE OPERA HOUSE.

the firm of Messrs. Smidth and Co., the leading brick and cement engineers on the Continent. This firm have undertaken the construction of many of our largest cement plants in this country, and there are few firms in that trade that do not use some machinery of Messrs. Smidth's manufacture. And now let it be said that to the courtesy, diligence, and patience of the members of this firm the main success of the outings in Copenhagen were due. They organised our receptions and our luncheons, and generally stood sponsors for the Danes in showing hospitality, good feeling and brotherliness, towards their blood relations.

On Sunday, such of the party as felt inclined visited Hedehusene—the house on the moor—a village some 15 miles out, where they examined the details of a very excellent brick plant. Monday formed the principal day of outing, the party proceeding first thing by train to Elsinore. Here carriages were in waiting, and a drive of some 15 miles was encountered in order to reach the Dronningmølle brickworks, where the party was handsomely received and treated by the proprietors. An elaborate typical Danish lunch was in readiness with a profusion of good things that

and away to Esbjerg, amid the deafening cheers of Danes and Britishers.

No holiday could have been more enthusiastically carried through than this. Its very jollity was infectious, it went with a swing and verve that allowed no moment for disaffection or complaint. And if evidence were needed of the satisfaction of every individual member of the party, it was to be found in the oft reiterated remark that the trip was in every detail too short.

A pleasing feature of the outing



WINDOW DECORATION IN TERRA-COTTA.



PORTICO OF VOR FRU KIRKE.

1829 by Hansen, and is beautifully ornamented by sculpture by Thorwaldsen. The tympanum of the Doric portico is decorated with Alto relievo in terra-cotta representing John the Baptist preaching in the wilderness.

The Exchange is situated on the Castle island, and is a red building in Dutch Renaissance, with casements and sculptured ornaments of grey sandstone. A curious tower rises from the centre of the building, the spire of which is composed of the tails of four dragons twisted together; the heads of the dragons being turned to the four points of the compass.

Trade and Craft.

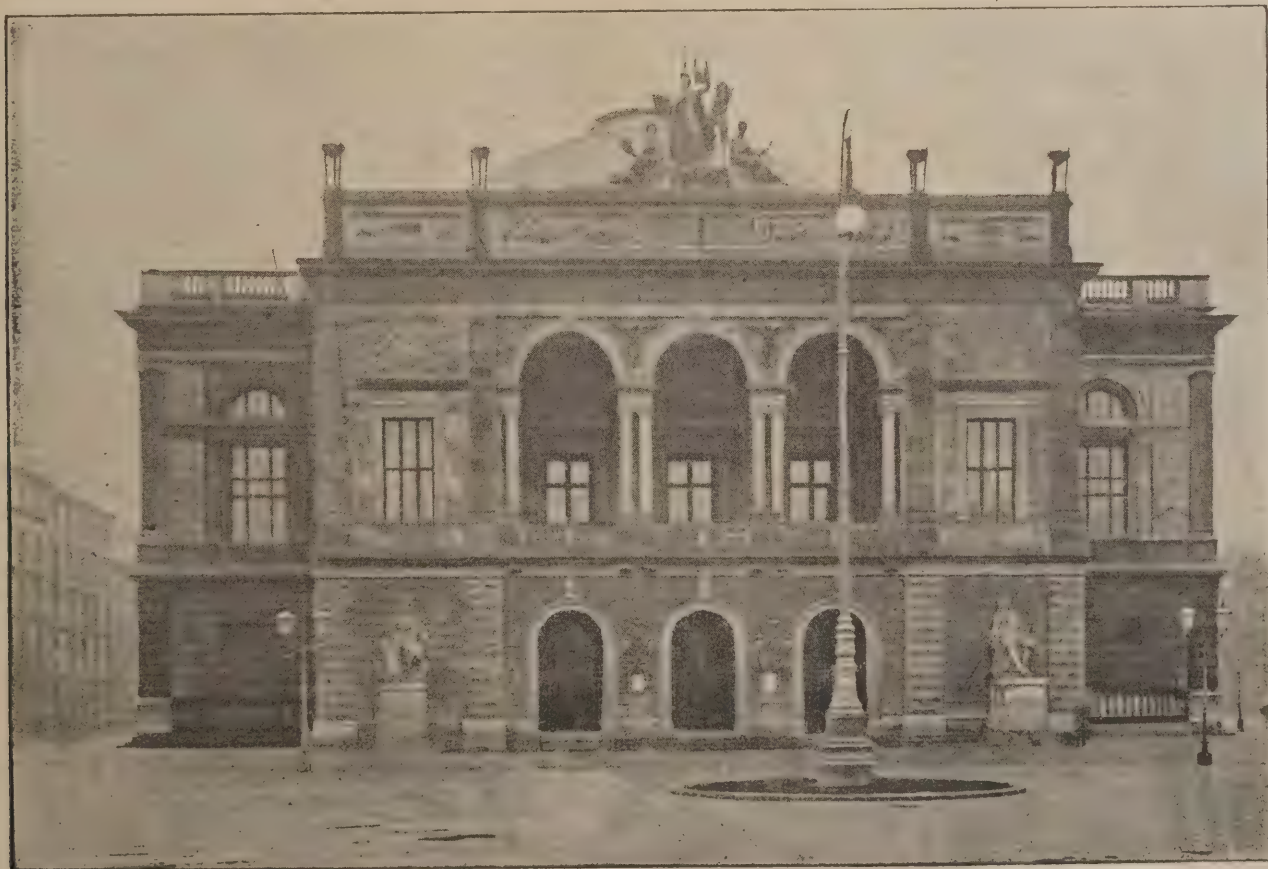
MESSRS. GEORGE WRIGHT AND CO.

This well-known firm of ironfounders, whose works are at Rotherham, have an excellent sample stock of mantelpieces at their London showrooms, 155, Queen Victoria Street, Blackfriars. In recent years these necessary adjuncts to the completion of the house have been vastly improved, and now, instead of the ordinary plain-looking fireplace, we have the artistic arrangement of the overmantel, in

walnut, oak, or mahogany, made to harmonise with the general character of the surroundings. In their catalogue Messrs. Wright and Co. show several pretty designs of these overmantels. One is a fine mantel with Carton Pierre enrichments, the overmantel having three bevelled mirrors. Other designs are equally attractive. The firm also supply mantelpieces in marble, slate, and iron, the large number of illustrations of these showing that they are prepared to meet all requirements as to size, shape, design, &c. Tile work, which is now very popular for stone decoration, is a speciality of theirs, whilst another feature is their stock of grates and stoves of both ancient and modern description. As manufacturers of kitchen ranges, Messrs. Wright and Co. offer a varied list for selection, the self-setting portable and the improved self-acting cottage ranges calling for attention; whilst of kitcheners, their "Gold Medal Range" is specially recommended. Their extensive experience fully qualifies them to give advice, and the article in their catalogue, "Directions for Fixing Kitcheners," with diagrams, will be found of great service. Messrs. Wright and Co., besides being manufacturers of fireplaces and all the requisites connected therewith, make steam cooking apparatus, stable and agricultural buildings fittings, pavement, basement, and floor lights, &c.

A STAIR-TREAD NOVELTY.

We have seen at Messrs. W. B. Wilkinson and Co.'s offices in Newcastle a new device for the avoidance of the slipperiness which is such a nuisance, to say nothing of the danger, in cement staircases. Indiarubber studs, being threaded for the purpose, are inserted in the concrete when in a soft state. These form a safety tread of no small ingenuity; and it is well known that good rubber is very durable. But these studs, as they wear, can be renewed by simply unscrewing, and so bringing up the rubber again to its proper place on the tread. This patent arrangement should be of great service where the safety of the step is of prime importance, as in schools, &c., though, for that matter, safety is everywhere important in a stair.



NATIONAL THEATRE, COPENHAGEN.

DESIGN & DETAIL OF DOMESTIC BUILDING.

By JOHN E. NEWBERRY, A.R.I.B.A.

II.

I NOW propose to give some practical hints on the design and detail of a brick house with sash windows, the frames of which are to show. Such a building is probably the most suited to modern requirements of any that are to be discussed in this series, for the rooms may be lofty and the windows are of the type usually most approved. The plan of such a house should be symmetrical to some extent and the roofs simply treated, hips being more suitable than gables. Dignity and elevational effect should be obtained by plain masses of wall surface and the proportions of the window openings. Shadow and richness should be confined to the crowning cornice and the doorways. Good colour must be sought for by a harmonious choice of materials, the paint of the woodwork and perhaps a judicious selection of the material used for roller blinds.

The former remarks on materials will apply throughout this series. The details show a brick treatment, but in a stone district ashlar facing would naturally be preferable.

BRICK FACING.—Hand-made bricks of a good red colour form an excellent facing, especially if one can afford to have the arches, jambs and sills of cut and rubbed brickwork. In default of this, neatly axed arches and plain stone sills will still look well. Or, if red bricks are difficult to obtain or too expensive, a facing of "washed stocks" of a dark yellowish-brown colour are by no means a bad substitute for red facings. In any case I should be disposed to have the pointing in white mortar with struck weathered joints.

ASHLAR FACING, such as one sees in some of our later Renaissance houses, is very charming in a stone country. An example that I well remember has plain lintels to the sash windows and flush sills, the moulded work being concentrated in the eaves cornice, a string course at first floor level, and the doorway.

ROOFS.—The roof covering should harmonise or contrast well with the facing of walls. For red brick, green slating forms the best contrast, but the slates should be thick and not too smooth. The size known as "Ladies,"

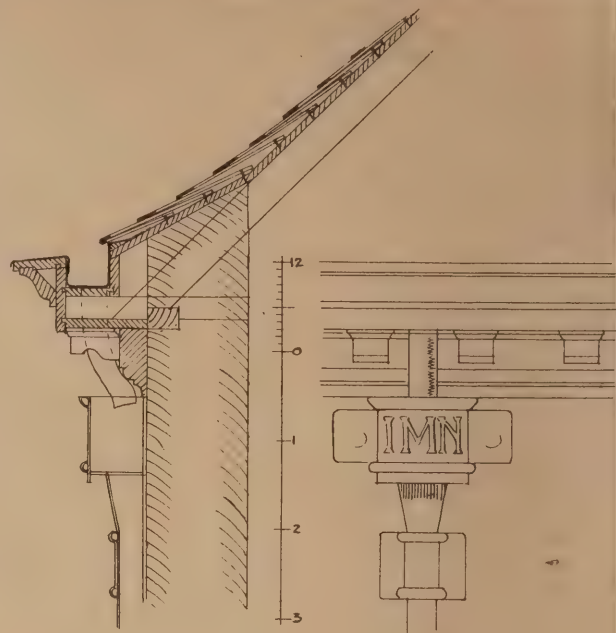
16in. by 8in., gives more "scale" to a building than the ordinary large "Countess" slates. A red tile ridge looks cheap to my mind, and out of place; plain lead forms a far more suitable termination to a slated roof. But for the hips in best work, I would advise their being close cut, with a small secret lead gutter on the angle underneath the slates. It is desirable that the pitch should be a good one, say 45deg., as this enables the roof to be utilised with convenient attics.

DORMER WINDOWS constructed of wood are suited for our subject, either flat topped or treated as pediments, curved or straight. The tops and cheeks would be covered with lead.

CHIMNEY STACKS.—In the best work nowadays one generally finds these features quite simply treated. The sketch elevation shows a moulded stone capping 9in. deep, with a 6in. moulded band lower down. In larger chimneys a good effect may be obtained by breaking up the stack with small pilasters 9in. wide, and of very slight projection.

EAVE'S CORNICE.—This feature is of the utmost importance in our design. It may be of wood painted, or rubbed brick, or moulded stone. The detail shows a wooden treatment with a sunk lead-lined gutter in it. The rafter feet and bearers notched on to the wall-plate should give ample fixing, and the large tilting piece, nailed to back of rafters, gives additional strength to the upper part.

In the old examples of rubbed brick eaves' cornices, one generally finds them surmounted by a brick parapet, but in modern work, to avoid the parapet, a usual method is to make the upper member of cornice a cast-iron ogee rainwater gutter. This is not satisfactory, as it neither can nor should be painted to imitate brick. There is also a difficulty in arranging the falls. If a brick cornice with iron gutter is to be adopted, a good method is to design a

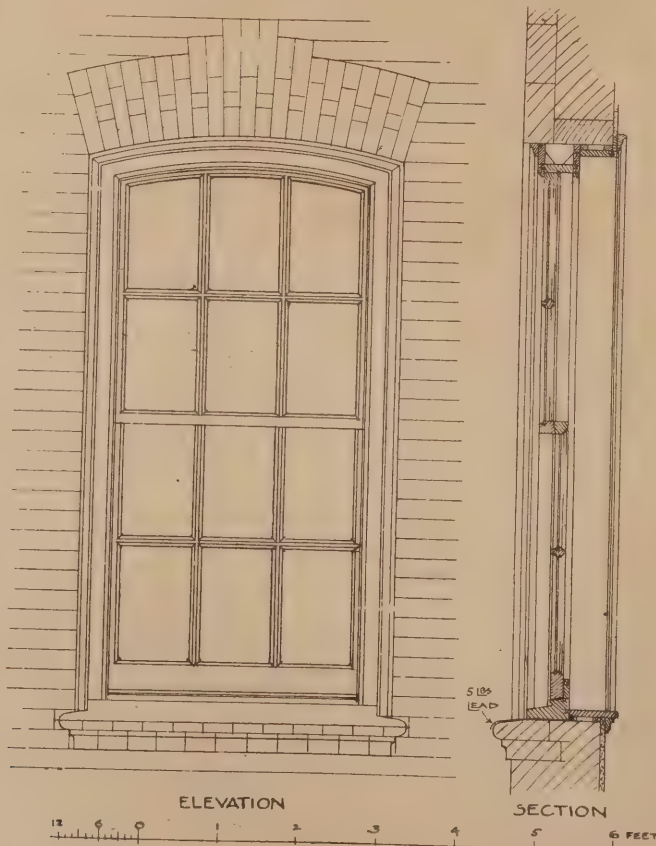


CORNICE AND RAIN-WATER HEAD

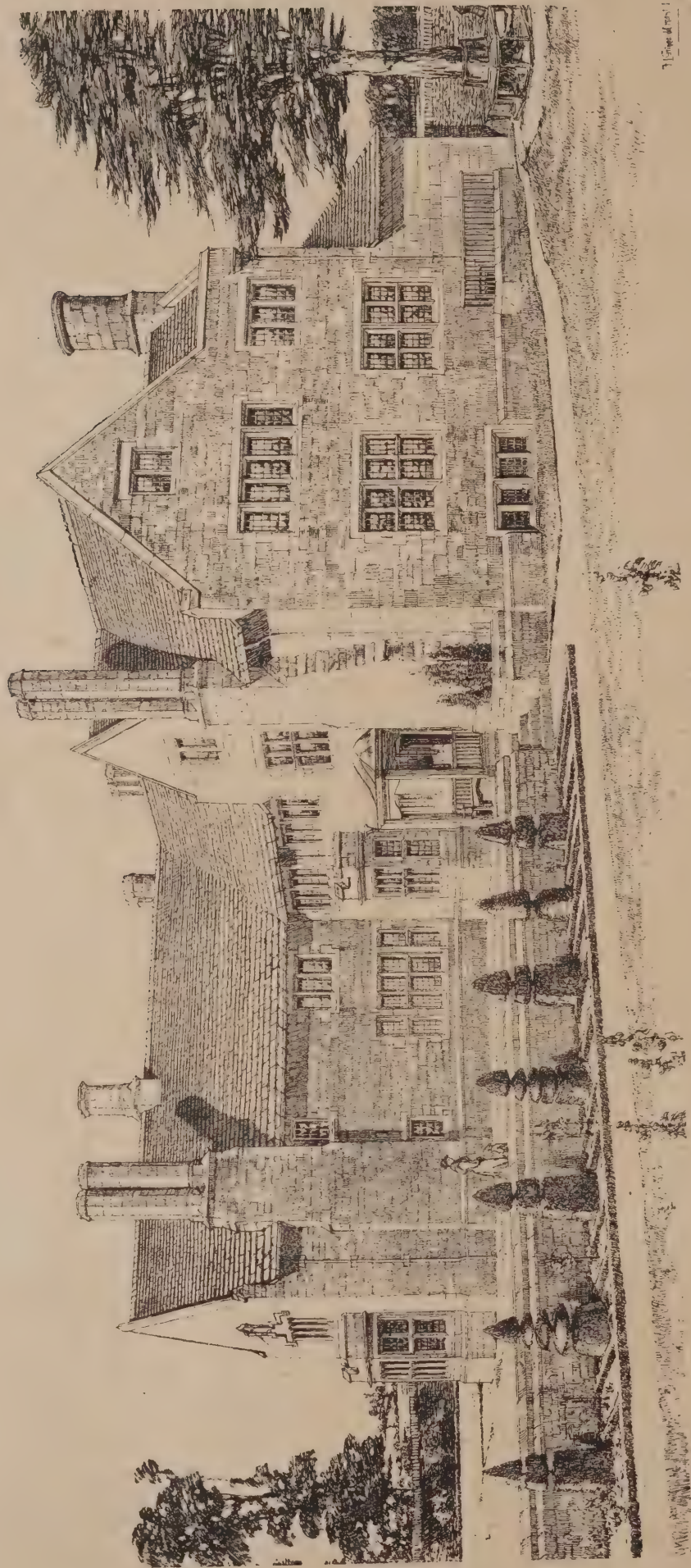
complete cornice in brick and let the iron gutter stand back some 3in. or 4in. from the face. The gutter should be of a square section, with a small fillet or bead on the outer edge, and it might be painted some low-toned colour so as neither to hide the fact of its being iron, nor yet to produce too great a division between the cornice and roof covering.

A stone cornice is doubtless the best and most monumental termination; a curved sunk gutter should be formed in it lined with lead, with lead pipes leading to rainwater-heads as in the wooden example. Care must be observed that the stones have sufficient "tail," and are large enough to prevent any tendency to topple over. They should have cement plugs in the joints, and might be dowelled in the beds with 1in. slate dowels.

WINDOWS.—An ordinary sash window is not a pleasing feature, consisting, as it so frequently does, of a single large sheet of glass, or worse still, divided by a vertical sash bar. But it is the most practical window for modern purposes, being easier to clean than a series of casements, and affording better ventilation. In the detail the full width of the frame is shown, and it is set back only 2½in. from the face of wall; the frame is built in and a moulded fillet bedded in white lead screwed on after. The reveal being of rubbed brick, this forms a thoroughly watertight joint. Another method which still shows more of the frame than usual is to build it in a 2½in. rebate instead of the ordinary one of 4½in. Yet another is to expose the whole of the frame and set it in a 9in. reveal with a 2½in. rebate on the inside. With a sash frame of the ordinary size, this leaves 2½in. from the face of wall to frame, which may be finished with a moulded fillet planted on as shown on detail. Particular care should be taken to design sash windows so that the sash bars divide them into oblongs of a good proportion. They should be of a somewhat greater height than width. The thickness of the bars is also of importance, and should not be less than 1½in. Some architects make them as wide as 2in. with good effect. Points to be observed in detailing a sash window are: The pulley stiles should not be less than 1in. or 1½in. in thickness, the parting bead should be of oak and continued across head to prevent draught; a deep bottom bead, tongued to sill, will allow of ventilation between the meeting rails when the lower sash is raised a couple of inches; deal parting slips, or zinc pendulum slips, between the weights should never be omitted. The sill, which may be of oak or teak, should be bedded on the lower sill with white lead, and if a stone sill is used a galvanised iron tongue, 1½in. by ½in., should be inserted in grooves formed in the wood and stone. The



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DESIGN FOR A HOUSE. BY F. W. BEDFORD.

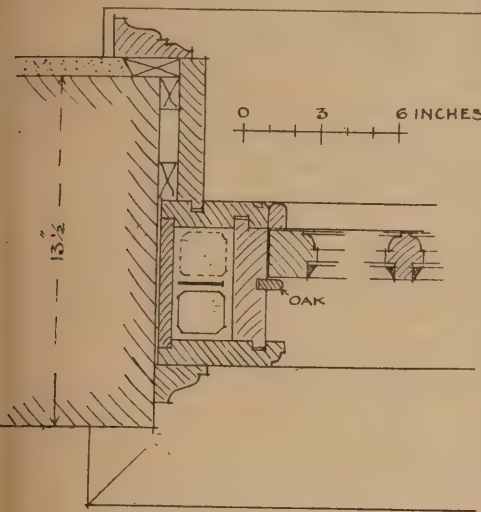


NEW BOARD SCHOOLS, TIVERTON. MESSRS. SILCOCK AND REAY, ARCHITECTS.

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rubbed brick sill shown on detail is intended to be protected with a sheet of 5lb. lead, taken under wood sill, turned up on the inside, and nailed with copper nails. Moulded horns to the upper sash are unnecessary, unless its width is greater than its height; they then help to steady the sash and prevent it from jamming in the frame.

THE ENTRANCE DOORWAY is capable of being treated in an endless variety of methods. For



DETAIL OF WINDOW JAMB

instance, in a brick house it may have fluted pilasters on either side, with entablature and pediment over, all in wood, painted. The door should be kept on the inside face of wall to give a good shadow to the opening. It should be an ample width, and might be divided into six or eight moulded and raised panels, the jambs and soffit of doorway being panelled to match. Or, if shelter is required, an over-

hanging porch is suitable. If the ground floor rooms are sufficiently lofty, a semi-circular fanlight over the door might be inserted, a much better expedient for lighting the hall than putting glazed panels in an outside door.

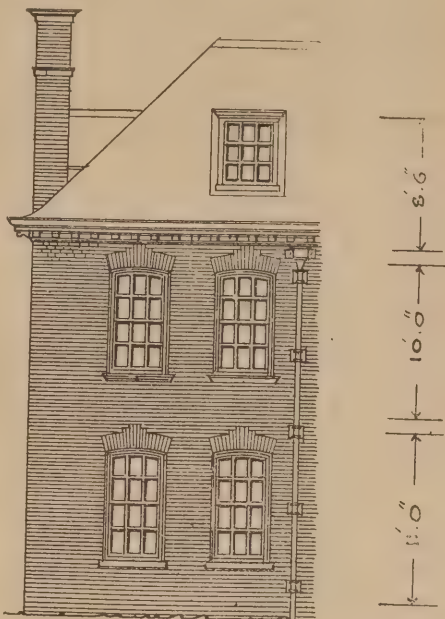
In a stone house there is still greater opportunity for a rich treatment, and appropriate heraldic emblems may be carved in the pediment. But carving should always be introduced with caution, and one must remember that only the best is worth having. This means employing an artist to do the work.

RAIN WATER HEAD.—A very simple head is shown on the cornice detail, and could be entirely made from 8lb. sheet lead. I would always rather use a plain lead head than an ornamental cast-iron pattern, as they last and look so much better. The rain water pipe may be of cast-iron, though, if funds will allow, lead is again much to be preferred. A square section—say, 4in. broad by 2 1/2 in.—looks well, and is large enough. Down pipes are often most useful vertical lines in an elevation if put in the right places.

PAINTING.—The colour of the external woodwork one would naturally have painted white or some shade of it, toned down, perhaps, with a little raw sienna or umber. The entrance doors might be a darker colour, such as fig green where there is brick facing, or vermilion in a stone house.

THE annual meeting of the members of the District Council for Edinburgh and the East of Scotland of the National Registration of Plumbers was held at Edinburgh. Sir James Russell presided, and said the Plumbers' Registration Bill, as they had heard, was very greatly improved, but, alas! the prospects of a private Bill in the session were extremely bad, and he supposed this Bill had just to be kept on the House of Commons table until it was passed. There was not much prospect of seeing it through this session, though it might by chance get into a better position. Every year that the Bill had been shown to the House it had been a better Bill. The constant

criticism and hammering it had received was improving it, and it was quite possible that the people who were longing for the Bill were seeing their own way more clearly, so that possibly this was no time lost. It was, however, an unfortunate thing for the public health, not to speak of the plumbing craft, that its passage through Parliament was so difficult. Nothing but the general education of the public, he supposed, had ever led to the passing of any Bill relating to public health. Legislation affecting public health was looked upon by the older school of people as an infringement of the rights and liberty of the public. Even if they got a Registration Bill which was not quite perfect, it would be a great help.



KEY ELEVATION

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
May 28	Brampton, Cumberland—Erection of Reading-room, &c.	Trustees of Riversdale Conservative Club	H. Scorer, Naworth Estate Office, Brampton.
" 28	Addlestone—Erection of Two Pairs of Houses	Guardians	J. B. Binns, Land and Estate Offices, Addlestone.
" 28	Ash—Enlargement, &c., of School	Urban District Council	Chancellor and Hill, 12, Jewry-street, Winchester.
" 28	Cardiff—Erection of Premises	W. Frewin	Veall and Sant, 5 & 6, Arcade-chambers, High-st., Cardiff.
" 28	Dundee—Erection of Hospital	Corporation's Gas Commissioners	J. M. Robertson, 33, Albert-square, Dundee.
" 28	Peterborough—Reslating, &c., to Workhouse	Select Vestry	J. G. Stallebrass, Architect, North-street, Peterborough.
" 28	Surbiton—Erection of Offices	Great Northern Ry. Co., Ireland	Forsyth and Manly, 16, Great Marlborough-st., London, W.
" 28	Tipperary—Erection of Residence	Co-operative Society Limited	W. H. Hill and Son, 28, South Mall, Cork.
" 28	Wick St. Lawrence—Farm Buildings	Royal National Lifeboat Institution	S. Davis, Ebdon.
" 30	Edinburgh—Pulling Down Chimney	Urban District Council	W. R. Hering, Gasworks, New Street, Edinburgh.
" 30	Leeds—Erection of Twelve Houses, &c.	Corporation	T. Winn, 92, Albion-street, Leeds.
" 30	Aghalee, Lisburn, Ireland—Receiling, &c., Chancel	Great Northern Ry. Co., Ireland	Aghalee Glebe, So'dierstown, Ireland.
" 30	Aughnacloy, Ireland—Erection of House	Co-operative Society Limited	J. J. Phillips and Son, 61, Royal-avenue, Belfast.
" 30	Banbridge—Erection of Addition to Goods Warehouse	Royal National Lifeboat Institution	Company's Engineer-in-Chief, Amiens-st. Terminus, Dublin.
" 30	Bedlington—Erection of Steam Bakery	Urban District Council	Boulds and Hardy, Architects, Morpeth.
" 30	Carrikerfergus—Erection of Shed, &c.	Corporation	J. C. Holden, Hon. Sec., Carrikerfergus.
" 30	Dartmouth—Rebuilding Boundary Walls, &c.	Cemetery Committee	T. O. Veale, Surveyor, Dartmouth.
" 30	Edinburgh—Erection of Public Baths	Agricultural Association	Public Works Offices, City Chambers, Edinburgh.
" 30	Keighley—Erection of Hospital Blocks	W. Watt	W. and J. B. Bailey, 1, Scott-street, Keighley.
" 31	Warrington—Erection of Greenhouse	Guardians	T. Longdin, Borough Engineer, Town Hall, Warrington.
" 31	Halifax—Fitting-up Show-yard	Rev. M. B. Curry	C. F. L. Horsfall and Son, Architects, Lord-street, Halifax.
" 31	Dufftown, Scotland—Erection of Villa	G. Craik	W. G. Doolin, Architect, Dawson-chambers, Dublin.
June 1	Alverstoke, Hants.—Enlargement of Workhouse	Co-operative Society Limited	G. E. Halliday, 14, High-street, Cardiff.
" 1	Ripponden, Yorks.—Erection of Club	Somerset County Agricultural Assn.	G. Reavell, jun., Architect, Alnwick.
" 1	Clonakenny, near Roscrea, Ireland—Church	Union Guardians	A. A. Windle, 13, Waterloo-road, Blyth.
" 1	Aberavon, Wales—Enlargement of Parish Church	Hornsey Urban District Council	S. F. Hynes, 41, South Mall, Cork.
" 1	Alnwick—Erection of House and Stabling	Co-operative Society	J. O. Smith, 7, Old Queen-street, Westminster, S.W.
" 1	Blyth, Northumberland—Erection of Business Premises	Great Western Railway Co.	A. B. Cottam, Surveyor, Bridgwater.
" 1	Cork—Enlargement, &c., of Schools	Commissioners H.M. Works	D. M. Davies, 58, Water-street, Neath.
" 1	Thetford, Norfolk—Enlargement of Store Premises	Urban District Council	E. J. Lovegrove, Surveyor to Council, Southwood-lane, N.
" 1	Bridgwater—Show-yards	Rural District Council	J. T. Franklin, 40, Bridget-street, Rugby.
" 2	Neath—Construction of Residence, &c.	Fletcher Bros. Limited	Engineer, Great Western Railway Station, Wolverhampton.
" 6	London, N.—Erection of Park-keeper's Lodge	Ecuadorian Government	12, Whitehall-place, S.W.
" 6	Rugby—Alterations, &c., to Stores	J. W. Jopson	Gordon, Lowther, & Gunton, Finsbury Ho., Blomfield-st., E.C.
" 7	Cefn, Denbighshire—Erection of Cottage		C. Parnham, District Surveyor, Cotgrave, Notts.
" 7	Weston-super-Mare—Erection of Post Office		C. F. L. Horsfall & Son, Architects, Lord-st. chhrs., Halifax.
" 8	Watford—Erection of Electric Light Station		Commercial Department, Foreign Office, S.W.
" 8	Bingham, Notts.—Erection of Culvert, &c.		Brazilian Legation, London.
" 8	Halifax—Erection of Warehouse, Boiler House, &c.		J. Crocker, F.R.I.B.A., Exeter.
Aug. 31	Guyaquil—Construction of Custom House		J. Hutton, Architect, Kendal.
Oct. 24	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.		J. Farquharson, Architect, Haddington.
No date.	Exeter—Erection of Three Houses and Chapel, &c.		D. Dodgson, 86, Albion-street, Leeds.
"	Grange-over-Sands, Lancs.—Shop and Dwelling-house		C. B. Taylor, 20, Sir Thomas-street, Liverpool.
"	Haddington, Scotland—Erection of School		J. E. Leak, Architect, Hunslet.
"	Headingley, Leeds—Erection of Two Houses and Shop		J. Judson and Moore, Architects, York-chambers, Keighley.
"	Heswell, Cheshire—Erection of Houses		J. Williams, Architect, High-street, Cardiff.
"	Hunslet, Leeds—Erection of 14 Cottages and 5 Houses		J. F. Cooke, Printer, Station-road, Loftus.
"	Keighley—Erection of Engineer's Workshop		G. E. T. Laurence, 181, Queen Victoria-street, E.C.
"	Llandaff—Erection of Ten Workmen's Houses		W. Belcher, 10, Springfield-road, Kingston.
"	Loftus, Middlesbrough—Alteration to Business Premises		
"	London, N.—Erection of Schools		
"	Norbiton—Erection of Fifteen Pairs of Cottages		

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
No date.	BUILDINGS—Continued.		
"	Purston, Yorks.—Erection of Villa Residence	W. Cowling	Garside and Keyworth, Architects, Pontefract.
"	Stalybridge—Erection of Store, Houses, &c.	Dr. Hancock	G. E. Webbott, Architect, Dean-street, Stalybridge.
"	Stalybridge—Erection of House		G. E. Webbott, Architect, Dean-street, Stalybridge.
"	Brynmawr, Wales—Drill Hall	D. J. An, Ogilvie and Co. Ltd.	F. Baldwin, Architect, Becon.
"	Cork—Erection of Houses and Shops		A. Hill, Architect, 22, George's-street, Cork.
"	Crossgates, near Leeds—Two Semi-detached Houses		P. Robinson, Architect, 72, Albion-street, Leeds.
"	Fort Estate, Lisburn—Erection of Fifty Houses		J. Allen, Solicitor, Lisburn.
"	Belfast—Erection of Offices	J. Lipsey and Co.	W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Belfast—Rebuilding Licensed Premises	H. Lavery	W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Belfast—Additions to Licensed Premises	P. and M. Bradley	W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	King's Lynn—Erection of Shop	Mrs. Gates	L. F. Eagleton, Architect, Bank-chambers, King's Lynn.
"	Chesterfield—Erection of Four Cottages		W. Glossop, Architect, 20, Cavendish-street, Chesterfield.
"	Chesterfield—Erection of Two Houses		W. Glossop, Architect, 20, Cavendish-street, Chesterfield.
"	Oxton, Berwickshire—Erection of Houses		J. R. & E. E. Pearson, Architects, 21, Castle-st., Edinburgh.
"	Gullane, N.B.—Erection of House	Rev. A. W. Williamson	J. R. & E. E. Pearson, Architects, 21, Castle-st., Edinburgh.
"	Treallow, Rhondda Valley—Erection of Chapel		J. Rees, Architect, Hillside, Pentre.
"	Saltburn-by-Sea—Erection of House		W. Peachley, Architect, 3, Amber-street, Saltburn-by-Sea.
"	Bournemouth—Erection of Church		Boreham and Morton, Surveyor, Sunderland.
"	Ulverston—Warehouse at Paper Mills	S. Pollitt and Co.	Settle and Farmer, Architect, County-square, Ulverston.
"	Leicester—Superstructure of Asylum Buildings	Borough Asylum	G. T. Hine, 35, Parliament-street, S.W.
"	ENGINEERING—		
May 28	Cirencester—Well Sinking, &c.	Rural District Council	F. Reimio, Newport-street, Swindon.
" 28	Sunderland—Erection of Lattice Girders, &c.	River Wear Commissioners	H. H. Wake, Office, Commissioners' Quay, Sunderland.
" 28	Cowes—Supply of Pumping Machinery	Urban District Council	J. W. Webster, Engineer to Council, High-street, Cowes.
" 28	Sandbach—Depositing Tanks at Pumping Station	Urban District Council	W. Wyatt, Bryndwr, All Saints, Shrewsbury.
" 28	Sherborne—Erection of Waterwheel, &c.	Urban District Council	Surveyor, Half-moon-street, Sherborne.
" 30	Frimley, Surrey—Supply of Lamps	Urban District Council	W. J. Hodgson, Surveyor to Council, Frimley.
" 31	Tangiers—Water Supply	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
June 1	Hertford—Supply, &c., of Turbine and Pumps	Rural District Council	G. Chatterton, 46, Queen Anne's-gate, Westminster, S.W.
" 1	Hertford—Construction of Weir, &c.	Rural District Council	G. Chatterton, 46, Queen Anne's-gate, Westminster, S.W.
" 4	Eastbourne—Gasholder Tank	Gas Company	H. E. Jones, Engineer, Harford-street, Stepney.
" 4	Leyland, Lancs.—Filtration Works & Sewer Extensions	Urban District Council	W. Wrennall, 9, Harrington-street, Liverpool.
" 4	Worcester—Supply, &c., of Boiler	City Council	T. Laink, City Engineer, Guildhall, Worcester.
" 6	Wicklow—Harbour Improvements	Harbour Commissioners	Sir A. Rendel, 8, Great George-street, Westminster, S.W.
" 6	Sunderland—Supply of Girders and Columns, &c.	River Wear Commissioners	H. H. Wake, Engineer, Commissioners' Quay, Sunderland.
" 7	Coventry—Electric Mains, &c.	Electric Lighting Committee	G. S. Ram, City Electrical Engineer, Coventry.
" 11	Bushy, Herts.—Construction of Covered Reservoir	Colne Valley Water Company	J. Taylor, Sons, & Santo Crimp, 27, Gt. George-st., Westminster.
" 13	Bury St. Edmunds—Engine, Boiler-house, Plant, &c.	Corporation	F. H. Medhurst, Westminster-chambers, Victoria-st., S.W.
July 4	Radomir, Bulgaria—Construction of Railway	Ministry of Public Works	Commercial Department, Foreign Office.
" 7	Leicester—Supply and Fixing of Grids	Gas and Electric Lighting Committee	A. Colson, Engineer, Millstone-lane, Leicester.
No date.	Southowran, Yorks.—Diverting Water Courses		R. Berry, Mining Engineer, Arcade-chambers, Halifax.
June 3	FURNITURE—		
"	Lewes, Sussex—Fitting-up Council Chamber	East Sussex County Council	County Surveyor, County Hall, Lewes.
May 28	IRON AND STEEL—		
" 30	St. Anne's-on-Sea—Supply of Fencing, &c.	Urban District Council	T. Bradley, Clerk, Council Office, Park-rd, St. Anne's-on-Sea.
" 30	Glasgow—Supply of Railway Stoves	Caledonian Railway Company	Stores Supt., Caledonian Ry., Charles-st., St. Rollox, Glasgow.
" 30	Edinburgh—Supply of Pipes	Edinburgh & Leith Gas Commissioners	W. R. Herring, Engineer, New-st. Gasworks, Edinburgh.
" 31	Buxton—Supply of Cast-iron Pipes	Urban District Council	W. H. Grieves, Surveyor, Town Hall, Buxton.
June 6	London, E.C.—Supply of Materials	Corporation	Surveyor's Office, Guildhall, E.C.
" 8	Blackburn—Iron Conservatory, &c.	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
May 29	PAINTING AND PLUMBING—		
" 31	Warrington—Painting Shops, &c.	Estates and Cemetery Committees	T. Longdin, Borough Surveyor, Town Hall, Warrington.
" 31	Watergrove, Rochdale—Painting and Decorating Church		G. E. Cryer, Church-terrace, Wardle.
June 3	London, S.W.—Painting, &c.	Chelsea Guardians	Launsell and Harrison, 38, Bow-lane, Cheapside, E.C.
" 3	Llanvrechva, Wales—Painting, &c.	School Board	H. Bythway, Clerk to Llanvrechva Upper School Board, Pontypool.
No date.	Cardiff—Painting, &c.	C. J. Smith	A. Burgham, Redbrook, near Monmouth.
"	South Allershot—Painting, &c.	War Department	Royal Engineer Office, Head Quarter Offices, Aldershot.
May 28	ROADS—		
" 28	Aylesbury—Supplying Granite Kerbing, &c.	Bucks County Council	R. J. Thomas, County Surveyor, County Hall, Aylesbury.
" 28	Melrose—Laying Concrete	Corporation	R. Dunn, Town Clerk, Melrose.
" 28	Norden, Lancs.—Setting-out Show Ground	Agricultural Society	W. Ashworth, Secretary, Norden.
" 31	Mexborough, Yorks.—Street Works	Urban District Council	G. F. Carter, Surveyor, Council Offices, Mexborough.
" 31	Shrewsbury—Supply of Kerbing and Flagging	Improvement Committee	W. C. Eddowes, Old Market Hall, The Square, Shrewsbury.
" 31	Walton-on-Naze, Essex—Road Works	Urban District Council	H. W. Gladwell, Surveyor, High-street, Walton-on-Naze.
June 1	Hove, Sussex—Supply of Granite, &c.	Urban District Council	H. H. Scott, Town Hall, Hove.
" 1	Burgess Hill, Sussex—Supply of Flints	Urban District Council	A. F. Hardwick, Clerk, Burgess Hill.
" 1	Poole—Supply of Granite	Council	J. Elford, Borough Engineer, King-street, Poole.
" 1	Rochester—Street Works	Corporation	W. Banks, City Surveyor, Guildhall, Rochester.
" 1	Rochester—Supply of Materials	Corporation	W. Banks, City Surveyor, Guildhall, Rochester.
" 11	Slough—Making-up Streets	Urban District Council	Surveyor, 11, Mackenzie-street, Slough.
No date.	Biddulph, near Hanley—Street Works		T. Hulme, 67, Bryan-street, Hanley.
May 28	SANITARY—		
" 28	Timberbottom, nr. Bradshaw Bridge—Sewage Purification	Turton Urban District Council	V. W. Laithwaite, Surveyor, Public Offices, Bromly Cross, near Bolton.
" 31	Westthroughton, Lancs.—Construction of Pipe Sewers	Urban District Council	T. Partington, Clerk, Council Offices, Westthroughton.
" 31	Stanwix, Carlisle—Removal of Ashes, &c.	Rural District Council	Clerk, 25, Lowther-street, Carlisle.
" 31	Stocksbridge, Sheffield—Sewerage Works	Urban District Council	Fowler and Marshall, 3, Hartstead, Sheffield.
June 3	East Ardsley, Yorks.—Construction of Sewers	Urban District Council	F. Massie, Tetley House, Kirkgate, Wakefield.
" 6	Lyfield, Sanitary Works	Charlton King's School Board	J. Villar, No. 1, Cambrey.
" 6	Tring, Herts.—Sewerage Works	Urban District Council	Thomas and Taylor, 1, Victoria-street, Westminster, S.W.
" 8	Wycombe—Stoneware, &c., Sewers	Rural District Council	Taylor, Sons, and Crimp, 27, Great George-street, S.W.
No date.	New Fryston, near Pontefract—Scavenging		J. Roberts, Clerk to Parish Council, Ropergate, Pontefract.
June 1	TIMBER—		
" 1	Rochester—Repairs to Timber Wharfing	Corporation	W. Banks, City Surveyor, Guildhall, Rochester.
" 1	Isleworth—Supply of Firewood, &c.	Union Guardians	W. Stephens, Clerk, Union Offices, Isleworth.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED
June 1	Wallsend—Laying-out Park	£50, £20	Wallsend Urban District Council.
" 2	Kilkenny—Plans, &c., of 40 Houses		Urban Sanitary Authority.
" 7	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 24	East Ham—Offices, Fire Station, and Public Baths	£105, £52 10s.	Urban District Council.
" 30	West Bangor, N.B.—Asylum Buildings		Edinburgh District Lunacy Board.
July 1	Widnes—Laying-out Park, &c.	£36 15s., £10 10s., £5 5s.	Jubilee Commemoration Committee.
" 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phoebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
No date.	Pitlochry—Plans for Public Hall		W. S. Pennell, Solicitor, Pitlochry.

BUILDERS' ENQUIRY DEPARTMENT.

LEAD OR ZINC SOAKERS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—What should be the length of lead or zinc soakers to be used with Countess slating and with plain tiles? Should the former be 20in. long and the latter 10in., the same as the slates and tiles respectively, or would they do of less length?—Yours, etc.,

D. F. S.

The soakers not intended to be visible when the roof is finished must be kept short enough

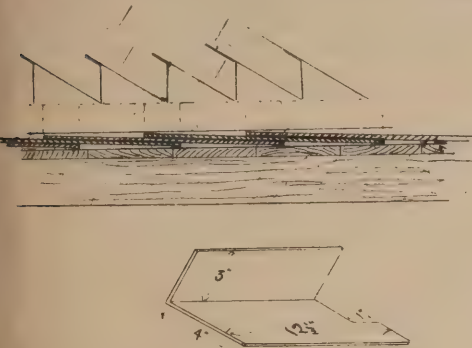


FIG. 1.

FIG. 2.

to be covered by the tail of slate or tile above. The required length may be found by deducting the margin, or exposed portion of the slate, from its length, and adding 1in. for clip—e.g., length of Countess slating 20in., minus 8in. margin plus 1in. clip = 12in.; length of lead required, width 7in. Fig. 1 is a section showing soakers *in situ*, with step flashing, which may be cut in the soaker if desired. Fig. 2 is a perspective view of soaker ready for laying.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN.—Accepted for erecting a new hydro, Martle, Aberdeen. Mr. E. G. Wilson, architect, 181A, Union-street, Aberdeen.—

Masonry.—John Morgan, Aberdeen ...
Carpentry.—Leslie and Hay, Aberdeen ...
Slating.—A. Kinkaid, Cults, Aberdeen ... £9,000
Plastering.—Geo. Leith, Aberdeen ...
Plumbing.—A. B. Robertson, Aberdeen ...
Painting.—Edward Copland, Aberdeen ...
Electric lighting, heating, &c. not included in above.

ALDERSHOT.—For the erection of six houses, for Mr. T. Smith Hughes. Messrs. Friend and Lloyd, architects and surveyors, Aldershot.—
W. Garland ... £1,875 Martin Wells and Co. £1,770
W. L. Edgoose ... 1,797 F. Knight (accepted) ... 1,749
[All of Aldershot.]

BANGOR (Wales).—For the erection of a residence, Pandra, for Mr. E. Jones. Mr. R. Davies, architect, Bangor.—
R. and J. Williams ... £1,300 Watkin Jones, Bangor £1,145
Jones and Williams ... 1,207 *Accepted.

BIRMINGHAM.—For erecting new factory, Fleet-street, Birmingham, for Messrs. Spurrier.—
Smith and Pitts ... £1,350 R. Fenwick ... £1,210
W. Safecote and Sons 1,333 W. Robinson ... 1,150
T. Johnson ... 1,305 W. Hopkins ... 1,140
R. M. Hughes ... 1,231 Lidzey and Evans * 1,121
*Accepted.

BLACKPOOL.—For the erection of business premises, Foxhall-road and York-street, for Messrs. Bickerstaffe, Ltd. Messrs. Garlick and Sykes, architects, 22, Birley-street, Blackpool.—
Wm. Ainsworth ... £5,800 0 0 Cardwell Bros. ... £5,496 10 0
Dryland & Preston 5,733 14 0 J. M. Fletcher ... 5,478 0 0
W. H. Dean and ... 5,722 0 0 R. W. Bonny ... 5,454 2 6
Sons ... 5,722 0 0 Fielding & Sons * 5,401 2 6
Thos. Hartley ... 5,661 2 3 Kerfoot & Fryer 5,299 18 2
Blackburn and ... Buttermorth and ...
Hastings ... 5,654 18 0 Sons ... 5,299 17 4
Parkinson & Sons 5,558 0 6 Thorgill & Robson 4,847 0 0
*Accepted.

[All of Blackpool.]

Butler and Co.'s Trustees, Leeds ... £1,529 15 0
Foster and Son, Preston (accepted) ... 1,167 6 10
BOVEY TRACEY.—For work to be done at Bovey Tracey, for the Bovey Pottery Company, Limited. Mr. W. G. Coudrey, architect, Paignton. Quantities by Mr. Vincent Cattermole Brown, of Paignton.—
S. Blouey ... £2,920 0 Webber and Sons ... £1,955 0
E. P. Bovey ... 2,490 0 E. Westlake ... 1,939 10
T. Brown ... 2,370 0 Pillay ... 1,900 10
W. G. S. Mardon ... 2,348 0 Zeally ... 1,800 0
R. F. Yeo ... 2,035 0 M. Bridgman, Paignton (accepted) ... 1,782 0
J. Turner ... 2,010 0
BUSHEY.—For the erection of new mission hall at Clay Hill, for the Committee. Mr. A. R. Barker, architect. Quantities by Mr. Chas. G. Vinnall.—
Roberts ... £1,627 Kirby and Sons ... £1,481
Mathews ... 1,790 W. Bailey ... 1,450
Boff ... 1,734 Whitehouse ... 1,400
Dupont ... 1,405
FARINGDON.—Accepted for the erection of a post office. Messrs. William Drew and Sons, architects, Swindon.—
J. Williams, Swindon ... £260

FARINGDON.—Accepted for erecting the "Eagle Tavern" public-house, Little Coxwell, near Faringdon, Berks, for Messrs. R. B. Bowby and Co., North Wilts Brewery, Swindon. Messrs. W. Drew and Sons, architects, Swindon.—

J. Willis, Little Coxwell ... £260
HANLEY.—For rebuilding the "Quiet Woman Inn," Broad-street, Hanley, for Messrs. Mayers Bros. Mr. John T. Brealey, architect, Hanley and Leek. Quantities by architect.—
Geo. Ellis ... £1,204 0 C. Cornes and Sons £1,025 0
Thos. Chatfield ... 1,054 8 Thos. Godwin, Hanley (accepted) ... 1,019 0
E. Booth ... 1,028 0
KETTERING.—For the erection of a new factory, Connaught-street and Avondale-road, Kettering, for Messrs. Wilson and Watson. Mr. H. A. Cooper, architect, Kettering.—
H. Martin ... £6,915 C. and F. Henson ... £5,960
Bryan and Son ... 6,635 C. Andrew ... 5,955
Freeman and Sons ... 6,568 H. Judkins ... 5,885
J. W. Hart ... 5,992 Smith, Edmonds, and ... 5,823
Garrett ... 5,889 Co., Kettering * 5,823
*Accepted.

KING'S LYNN.—For rebuilding house, shop, and business premises, 17, High-street, King's Lynn. Mr. H. J. Green, architect, Norwich.—
Kerridge and Shaw £1,494 7 W. H. Brown ... £1,371 0
Bardell Bros. ... 1,489 0 Collins and Barber, ...
Robert Dye ... 1,412 0 Downham Market * 1,330 0
Read, Wildbur, and ...
Co., Ltd. ... 1,398 14 *Accepted conditionally.

LEEK.—For erecting ten terrace houses, Ashbourne-road, for Mr. Wm. Goostrey. Mr. John T. Brealey, architect, Hanley and Leek. Quantities by architect.—
James Heath ... £5,400 0 0 S. Salt ... £4,727 10 0
C. Cornes & Sons 5,350 0 0 Heath and Lowe, ...
J. Fielding ... 5,047 15 6 Leek * 4,413 15 6
T. Grace ... 4,384 0 0 *Accepted.

LONDON.—Accepted for alterations and repairs at No. 78, Dean-street, Soho, W., for Mr. W. J. Fraser. Mr. Arthur E. Mullins, architect, 97, Barry-road, East Dulwich, S.E.—
T. Nicholson ... £588 11

LONDON.—For erecting a boiler house and chimney shaft in Lambeth-walk, S.E., for Messrs. Bennett, Sons, and Co., Ltd. Mr. J. A. Woodward, architect, 69, Kennington-oval, S.E. Quantities by Mr. Walter Woodward.—
Ansell ... £590 Parsons ... £347
John Appleby ... 980 Simmons ... 813
Marshall ... 940

NEWMARKET (Suffolk).—For laying, jointing, &c., 34 miles water-pipes, &c., for the Waterworks Company Limited. Mr. J. B. Everard, engineer, 6, Millstone-lane, Leicester.—
T. Rowland ... £4,066 8 1 S. Mason Lim., ...
E. Smith ... 3,295 0 0 Cambridge * £2,713 0 0
H. H. Barry ... 1,655 5 0
*Accepted.

OXSHOTT.—For erecting a house at Oxshott, Surrey, for Mr. Geo. Abernethy. Mr. F. G. Knight, architect.—
Falkner ... £6,753 Messom ... £5,977
Colls ... 6,544 H. Hutchinson ... 5,950
W. Watson ... 6,390

PENGE.—For alterations and entire reconstruction of bar and lobbies to "Pavilion Arms," Beckenham-road, for Mr. G. Upward. Messrs. Elsmore and Ratner, architects, 4, New Inn, Strand, W.C.—
Balaam Bros. ... £1,021 Higgs and Hill ... £710
Todd ... 843 Sheffield Bros ... 640
Edwards ... 814 Henry Leney, Penge * 596
*Accepted.

PENMAENMAWR (N. Wales).—Accepted for the construction of road and erection of thirty-one cottages, for Messrs. Brundritt and Co., Mr. Richard Davies, architect, Bangor.—
Robt. G. Williams, Llanfairfechan ... £4,500

PORT AMLWCH.—For erecting a Calvinistic Methodist chapel. Mr. Richard Davies, architect, Bangor.—
W. Williams ... £2,110 W. and O. Pritchard ... £1,890
Thomas and Son, Port ... O. Thomas ... 1,670
Amlwch (accepted) ... 1,935 H. Hughes ... 1,505

SWINDON.—For erecting new premises in Bridge-street, for Messrs. Cole and Lewis. Messrs. William Drew and Sons, architects, Swindon.—
J. Williams ... £1,287 0 J. Hatherley ... £1,177 0
W. A. Moulding ... 1,220 0 C. Williams, Swindon * 1,200 0
Flewelling & Huck ... 1,205 16 *Accepted.

ST. ALBANS.—For the erection of a pair of cottages on the Gombards Estate. Mr. Percival C. Blow, architect, St. Albans and Harpenden.—
Dunham ... £210 0 Bushell * £449 0
Sparrow ... 459 10 *Accepted.

TUNBRIDGE WELLS.—New dispensary, waiting, and consulting rooms, York-road, for the Friendly Societies' Medical Association. Mr. Hy. Elvig, architect, Tunbridge Wells.—
J. Jarvis ... £232 3 Leney and Son ... £508 19
G. Grover ... 511 0

WANSTEAD (Essex).—For making up Addison-road, for the Urban District Council.—
A. W. Porter ... £499 10 Joseph Jackson ... £390 0
W. Griffiths ... 470 0 J. Reeves, High-road, ...
A. T. Catley ... 450 0 Walthamstow, E. * 398 0
Jesse Jackson ... 422 0 *Accepted.

WOLDINGHAM.—For the erection of cottage residence. Messrs. Barnes-Williams, Ford, and Griffin, architects.—
Batley, Sons, & Holmes 2867 A. B. Chirwin * £775
J. L. Millner ... 850 0 E. Dives ... 767
*Accepted.

WEMBLEY, MIDDLESEX.

A number of IMPORTANT FREEHOLD BUILDING SITES, comprising portions of the highly favoured Building Estate known as "HARROWDENE," about three minutes' walk from Sudbury Station, on the L. and N.W.R., and about one mile from Wembley Park Station, on the Metropolitan and District Railway. The plots all occupy capital positions on the rising ground to the west of the first-mentioned railway, and possess GOOD FRONTAGES TO THE HARROW-ROAD, the Harrowdene-road, and Crawford-avenue, with depths varying from 200 to 300 ft. The Estate is laid out with 50 ft. roads, planted with trees, and provided with means of lighting; house connections are laid; gas and water mains are put in throughout; and the carriage-ways have been taken over by the Local Authorities. The best of the sites are eminently suitable for the Erection of Residences ranging from £60 to £100 per annum, whilst others are intended for Villas with rentals of from £35 to £40 per annum.

MESSRS. WALTON and LEE will OFFER the above for SALE by AUCTION, at the Public Offices, Wembley, on THURSDAY, JUNE 23rd, 1898, at SEVEN o'clock p.m. precisely. Particulars may be obtained of Messrs. FLAGGATE and Co., Solicitors, Craig's Court, Charing Cross, S.W.; or of the AUCTIONEERS, at their Offices, 10, Mount-street, London, W.

THE SOCIETY OF ARCHITECTS.

Founded, 1884: Incorporated, 1893.

A GENERAL MEETING of the Society of Architects will be held at the Rooms of the Society, at St. James's Hall, Piccadilly, W., on THURSDAY, MAY 26th, 1898, at 8 o'clock p.m., when Mr. C. DAVIS, Chief Librarian of Wandsworth Free Public Library, will read a paper on the subject of LIBRARY CONSTRUCTION AND ARRANGEMENT, which will be illustrated by the lantern.

ELLIS MARSLAND, Hon. Sec.
MONTAGU BALDWIN, M.A., Sec. 1

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PERSPECTIVES Artistically Prepared. Terms moderate.—G. W. C., 46, Lincoln's-inn-fields.

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R.I.B.A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

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The Governors of the above are prepared to receive APPLICATIONS for the appointment of a CLERK of WORKS to superintend the erection of a new Agricultural College and Blocks of Farm Buildings, Workshops, &c., at Edgmond, Newport, Salop, at a salary of £3 3s. per week, and unfurnished rooms on the premises, if desired.

Applications in writing (accompanied by copies of three recent testimonials from known Architects), and endorsed "Clerk of the Works," must be delivered at my office on or before JUNE 2nd. Possible duration of engagement 18 months.

C. R. LIDDLE,
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ASSISTANT DISENGAGED. Working, detail and contract drawings. Thoroughly practical designer. Surveyor and leveller. Could assist with quantities. Aged 24.—E. H., 66, Norroy-road, Putney, S.W.

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ALBION CLAY COMPANY LIMITED.

SOLE MANUFACTURERS of the



"GRANITIC STONEWARE" Pipes.

TRADE MARK.

All the "Granitic Stoneware" Pipes are made from "Stoneware" Clays, of which we are the Sole Proprietors. The Clays are carefully selected and blended to insure a hard, dense, **impervious and imperishable** body, specially adapted for **Sanitary** purposes. The Pipes have a "**toughness**" as opposed to "**brittleness**," which is not possessed by any other Stoneware Pipes. They have been proved to withstand the highest crushing and bursting pressures under tests by Kirkaldy and other authorities at home and abroad. They are made by the most improved Patent Machinery and are highly approved for their uniform superior quality. All the Pipes are stamped with the Trade Mark, "**Granitic Stoneware**," as above.

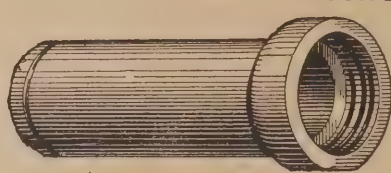
TESTED PIPES.—Selected and Tested under Hydraulic Pressure and Marked

All sizes to 24in. diameter of full Standard thickness, and of any length up to 3ft. for 6in. and upwards.

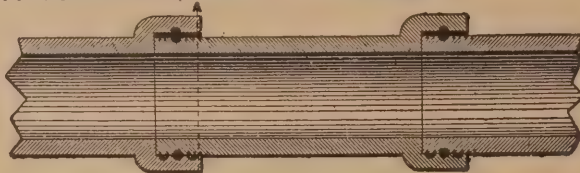


PATENT PARAGON PIPES.

PATENT PARAGON PIPE. C FORM.



PERSPECTIVE VIEW



LONGITUDINAL SECTION THROUGH C.D.



SECTION THROUGH A.D.

Sound Portland Cement Joints to stand any test. True alignment of the Invert and Firm Rest. No obstructive ledges at Invert as with ordinary Socket Pipes. Free Flow. No Stoppage. Full Capacity of Sewers and Drains maintained.

CHEAPEST IN FIRST COST AND MAINTENANCE.

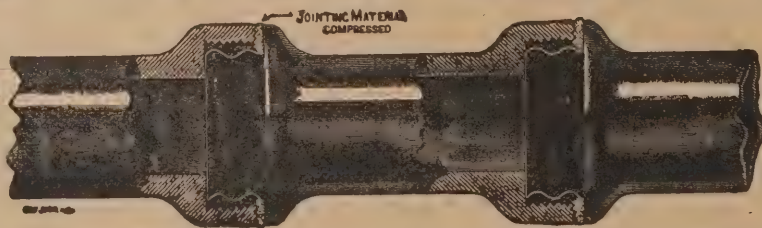
The **Patent Paragon Pipes** are superseding the **Ordinary Socket Pipes**. They are being specified for important Sewerage and Drainage Work in all parts for Government, Corporations and Sanitary Authorities. They have been used for the new Drainage of Smedley's Hydropathic Establishment, Matlock, Derbyshire, and the Royal Opera House, Covent Garden, London, &c.

To meet the requirements of **Sewerage** and **Drainage** according to circumstances, the **Patent Paragon Pipes** are made in **three** forms:—(A) With ordinary depth of Socket for Surface Water Drains, &c.; (B) With **deep** Sockets for **Sewers** and **House Drainage** and (C) With **extra deep** Sockets for the Best Class of Work.

When **specifying**, the Name should always be given in full, as **Patent Paragon Pipes A, B, C**, according to the kind required.

SYKES' PATENT JOINT PIPES.

THE MOST RELIABLE
PIPES FOR MAIN SEWERS
IN WATER-LOGGED
GROUND.



WATERTIGHT JOINTS
MADE WITH THESE
PIPES WHEN ENTIRELY
SUBMERGED.

The Screw Joint ensures true alignment of the Pipes. The **Patent Jointing Material** is **impervious** and **imperishable**. It sets slowly and yields for a time to any settlement of the Pipes in bad ground. It cannot enter the pipes and cause obstruction therein, as in grouting. Sykes' Patent Joint Pipes have made Watertight Joints in water-logged ground where other Patent Joints have failed. Easily laid by ordinary Pipe-layers. Bends and Junctions easily inserted.

Moderate in Cost, Easy to Lay, and the most Reliable of any for Bad Water-logged Ground.

SYKES' PATENT SEWER GAS INTERCEPTOR. The most **EFFECTIVE** for the **PRESERVATION** of **HEALTH**.
JONES & SYKES' PATENT CHANNEL BENDS FOR MANHOLES AND INSPECTION CHAMBERS.

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THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS

An Architectural Causerie.

International Art. If the exhibition of International Art is to be annual, then it may be regarded as certain that the New English Art Club will presently cease to exist. That it will also have the effect of reforming our English Academy is hardly to be expected, for the change, if ever it comes, must be the effect of a radical reform in its constitution, and so long as it frames its own laws this is not likely to happen. Suppose Academicians to be re-elected every three years, and all lovers of pictures entitled to vote, how precarious life would become, and how lively the papers would be! The result of infusing new blood at this rate could hardly fail to be beneficial. The Cabinet, or Selection Committee would be the elect of The Forty already chosen by us. The thousands who unblushingly send in their pictures would be reduced to as many hundreds at once, and even these would send none but their best. It may be said of bad pictures, and also of those which are only of average quality, that their room is more to be desired than their company, and it should be somebody's duty to see that every notable picture had space in abundance about it. It is simply because it has not, that so many prefer the New Gallery to Burlington House, and it is believed that this new exhibition will prove in another year to be more attractive than either. It should be remembered in this connection that it has only lately been organised, and that good as it is even now, it would have been better by far if artists in general had heard of it earlier. We would, if we could, have all the best pictures under one roof at one time and not be kept trotting round London to find them. If cliques are allowed to be formed at this rate we shall have, before long, as many show places for pictures as petty disputes among artists. To come now to the point: there are landscapes in the Knightsbridge gallery, which are perfectly splendid, and being by English painters, should by rights be at Burlington House. But the artist, like his friend on the Press, knows where he is treated best, and the Academy, for reasons more than sufficient, is not in high favour just now. If each of the paintings referred to required the space of a hundred no-account pictures, the said space should be given whatever its cost. But what, if this course were adopted, would become of the people's shillings? If the nation were made richer thereby the question might fairly be asked, but these, we believe, would be at least as readily paid if the pictures were fewer by far, and better displayed as a rule. The tendency of all forward movement is to reduce the percentage of fools in the mass, and to educate taste is to minimise the demand for what nobody really wants. As long as we live within walls there will be spaces to spare in the house for good pictures. There is a suggestion of quiet in their perfect composure, and, like coffee and muffins, they help to complete the English idea of the home; but the notion that everything painted is remarkable enough to be exhibited is worse than simply absurd. "Is such a thing as an emerald made worse than it was if it is not praised? A lyre, a little knife, a flower, a

shrub?" A feature of this exhibition, as at the Academy, is black and white work of all sorts, and the fact that the critic must go from one place to the other to obtain a fair idea of the whole appears to him to argue in favour of illustrators and engravers forming one body. The tendency to multiply mutually-exclusive societies is one of the most maddening signs of the times; but if they must be, then at least let there be a semblance of reason in the distinctions they draw. As well might a critic be asked to do an American fair in an afternoon as the Academy under present conditions, and the same in a lesser degree is as true of this exhibition. There is black and white here, black and white there, and

the same the other day—an equally heterogeneous show—at the Painter Etchers' establishment. Now, various as their productions are, there are distinctions efficiently clear between kinds of engravings and drawings to supply the basis of a classification. As every Art has its idiom, and every Art-worker the tricks of his trade to acquire, it happens that men similarly occupied are inclined to form clubs of their own. There was at one time an annual exhibition of Black and White Art, which, in the opinion of the writer, was among the principal events of the year, for, once within the walls of the building, he was able to give his whole mind to the subject. It is true that of drawings and engravings there



DETAIL OF ARRAS TAPESTRY, EXETER COLLEGE, OXFORD. "THE STAR OF BETHLEHEM."
DESIGNED BY SIR E. BURNE-JONES.

[In Illustration of our article on William Morris, and republished from the work by Aymer Vallance.]

are a great many kinds, but the critic is not a critic who is unable to see what the differences are, and to say what has been accomplished. Let it be said in conclusion that the critique cannot represent a serious effort on the part of the writer, while exhibitions (even this one at Knightsbridge) are arranged as they are. The larger the mass to be dealt with, the more cogent reasons there are for sub-dividing the subject matter. Let the Society of Illustrators combine to form one with the engravers, and let them once again every year have a show of their own. Let existing Academicians as they die out be replaced in such a way as has been suggested. Let all the best painting be shown in one place, and all the best sculpture. There is not enough of this in all London at present to fill more than one decent-sized room, but the best is unusually good. The writer, if asked what should be done with the "no-account" pictures, would have to confess that he felt rather fixed at the moment. Their name is Legion at least, and what makes them so troublesome is the fact that the humblest are so often the best. A suggestion which might find favour is that there should be no skying of pictures, and no necessity of kneeling to see them. To pictures of more than a certain size should one set of rooms be given, and to cabinet pictures the others. Then as to the non-exhibited it is thought that ignominy should not be attached to the mere idea of rejection, but that some simple system of awards, suggestive of merit, might be adopted. Then might yet another exhibition be held of paintings approved though rejected. It cannot be pretended that the artist—the prodigal son as a rule—is indifferent as to what becomes of his work, and when there is evident worth in the work we should be only too glad could we show him a way to the market.

E. R.

WE are a remarkable people.
London Year by Year.

We said as much many times, and with great emphasis last year, so that there can be no possible doubt about it. But if we are a truly wonderful nation for what we have done, we are certainly much more wonderful in what we are content to leave undone. To take London as the text of these remarks, we shall find building schemes prepared for a generation ago that are still in a notorious state of incompleteness—and likely so to remain. Nay, is not St. Paul's Cathedral an instance of a design whose completion is even now, after the lapse of more than two centuries, being tardily set about in the decoration of the interior which Sir Christopher Wren contemplated? To turn from this hoary example of how-not-to-do-it to something more recent, we have only to walk down to the Victoria Embankment to be confronted with further miracles of delay. For what purpose, think you, were the four great granite pedestals erected at the opposite ends of Blackfriars Bridge when that bridge was built some thirty years ago? Were they placed there as ornaments and for their own sweet sakes? Not so, good sirs. They were destined to carry four heroic-sized groups of sculpture, illustrative of the stirring story of the City of London. The Corporation offered the subjects for competition among sculptors, but none were found worthy, and so those pedestals are vacant to this day, as also are the others placed at intervals along the Embankment from Blackfriars to Westminster. One has, indeed, some recollection of a bronzed plaster cast of an equestrian statue of the French king, Henri Quatre, being placed on the north-west pedestal, opposite the Royal Hotel; but nothing came of it, even as nothing will probably come of the Boadicea cast just re-

moved from Westminster Bridge. Now that we have reached Westminster, we are come to a district full of such unfulfilled promises. Great George Street, Parliament Street, Delahay Street, and King Street were scheduled thirty years since for destruction and for the erection of Government buildings on their sites, but only now is a small portion of them being cleared away for the purpose. The next turning is Downing Street, and at the end of it, as you go down the steps into St. James's Park, the naked brickwork and unfinished arches of what was to have been an extension of the Home Office block, show hideously on the left hand. Then, to retrace one's steps and to proceed along Whitehall, is to come to the derelict plot of land on which, until some seven years ago, stood Carrington House, pulled down to provide a site for War Office extension. Many Committees and a Royal Commission have sat upon Government Offices sites since then, but the Carrington House site is still a wilderness—a wilderness lovely in spring and summer time with a profusion of wild flowers that by some strange chance grow there. Meanwhile, the crazy old houses in the upper part of Whitehall, purchased for the Admiralty ten years or more ago for the purpose of immediate demolition, are still used as "temporary" offices for that Department! It is safe to prophesy that when the next generation of Londoners is growing grey those temporary offices will still be in use. From these eloquent instances it may be worth while to note what has been done. Barry's great Palace of Westminster was not actually completed until Smirke's lath-and-plaster Law Courts outside Westminster Hall were demolished, twelve years or so since; and only after the vacant plot of land outside the western end of the present Royal Courts of Justice had been a scandal and an eyesore for many summers, was it turfed and put into decent order. But even that was done by private munificence, just as in 1870 that garbage-strewn iniquity, Leicester Square, was put in order and decorated by Baron Grant. Truly, we are a great people, but our rulers have their littlenesses! C. G. H.

ARCHDEACON CORNISH, in his charge to representatives of the deaneries of Powder and Carnmarth, at Truro, last week, said they had passed, and were passing, through a very critical time in the history of their cathedral. Large gifts had been given for at once continuing the building, but they were insufficient for that which ought to be done when the building was re-commenced. It was earnestly to be hoped that all would realise the extremely difficult position in which those who were responsible for continuing the work were placed. They had a plain duty to those who would follow, to use to the utmost the great opportunity presented to them in the wish of so many to perpetuate the memory of the Archbishop by carrying on the work whose completion he so ardently desired. They were almost forced to take a forward step, whatever difficulties had to be overcome, by the hopes held out to them by the London Committee. They were anxious not to place any unnecessary burden on Churchmen at the present time. They had to deal with large sums freely offered for the re-commencement of the work. They had too much in hand to stop, and yet not enough to go on. It was much to be desired that fresh gifts might be given which would enable the committee to continue the work to the west end, however much might be still left undone. They were confronted by two difficulties. They could not begin until they were within measurable distance of the sum required. Perhaps the best plan would be to appeal for £3000, to be given on condition that the building was re-commenced within a fixed time. The question of the continuing of the building must be decided in the autumn, the decision depending on the funds that might then have been promised or be in hand.

AN ARCHITECTURAL DERELICT.

KEW PALACE: PAST AND PRESENT.

VISITORS to Kew Gardens this summer will find in the Kew Palace and its adjacent grounds, which were formally opened to the public on Saturday week, a notable addition made to the attractions of that great national institution. Architecturally the building is not of great account. It is merely a pleasing specimen of the early Jacobean style, such as may be found in many parts of the district which was so favoured by the eminent and the wealthy of the Metropolis a couple of centuries ago. The palace is, however, delightfully situated in secluded grounds. It has a most interesting history associated with the private life of several of the Queen's ancestors. Built

IN THE TIME OF JAMES I.

by Sir Hugh Portman, a well-known Dutch merchant, it came into the possession of the Capel family, and by them was leased about 1730 to Frederick, Prince of Wales, son of George II. and father of George III. It was here that the Prince resided during a great part of the time of his violent disputes with his father, which are part of the political history of the middle of the last century. After Frederick's death in 1751 the Princess Dowager of Wales continued to reside at the palace and took great interest in the improvement of the gardens. She here brought up her son, the third George, in close retirement. His Majesty's consort, Queen Charlotte, died in the palace in 1818, at 75, but perhaps its most interesting association for the public of to-day is the fact that the Duke and Duchess of Kent, the parents of the Queen, were married under its roof.

A SURVEY OF THE BUILDING

reveals evident traces of the re-furnishing which it has recently undergone to adapt it to its new uses of a public show place. The painter and decorator have been busy everywhere—too busy, it seemed, for he had covered over with blue pigment some beautiful old oak panelling in the small ante-room to the left of the main entrance, which, if it had been simply cleaned and polished, would have been far more effective. In spite of the efforts of the officials of the Office of Works, an air of desolation pervades the place. There is not a scrap of furniture in most of the rooms, and there are no pictures to relieve the barrenness of the walls. The only apartments which contain anything of interest are the Queen's bedroom (where Queen Charlotte died) and the adjoining ante-room used by her Maids of Honour. These have in them several articles of furniture and various trifles which are interesting only for the insight they give into the domestic surroundings of Royalty in the early part of the century. Among the things which meet the eye, for example, are a number of specimens of needlework in frames, most of them

HIDEOUSLY UGLY

according to our way of thinking. Then there is a card-table with a cloth top, with the displayed faces of cards worked upon it in ingenious fashion. Overlooking this, upon the walls, is an engraving commemorative of Nelson's victory at Trafalgar, and hanging in close juxtaposition is a mysterious-looking astronomical chart. Several faded gilt chairs, a broken-down Chesterfield sofa, and a couple of old Japanese lacquer boxes constitute the other features of a somewhat melancholy display of relics of departed greatness. It can hardly be supposed that, with South Kensington so abundantly provided with furniture and works of Art appropriate to the period during which the building was in constant occupation by Royalty, it is intended to leave the palace in this forlorn state.

SIR JOSEPH FAYRER, Bart., has laid the foundation stone of an extension of the Fal-mouth Hotel, which will double the capacity of the original building erected in 1863 on the green slopes of Pendennis Point, to the south of the estuary of the River Fal.

RENAISSANCE WOODWORK IN ENGLAND.*

By J. HUNGERFORD POLLEN.

IN the following remarks I do not intend to touch on the matter of furniture, but to discuss woodwork, and of the Renaissance kind, from the point of view of the architect. Both in the construction of buildings and in adaptation to human occupation wood plays an important part. From the days of Greek temples, so moderate in size as compared with the imposing structures of Imperial Rome, timber has been a necessity. Special and exceptional buildings only could dispense with it; and if wood is necessary in hot climates it is much more indispensable in the north. The vast churches, halls, and palaces of civilized Europe require timber of large growth to support roofs which are of high pitch (in climates liable to heavy snowfalls), and even when the art of vaulting great widths came into use, these vaults also required a timber roof over them.

Wood in the Middle Ages and, indeed, long after, was the material of which houses and entire cities were built. London, down to the time of the Great Fire, was a timber city, interspersed with palaces, churches, of course, and castles of solid stone, but as a city with a congeries of streets, lanes, alleys, &c., it was a timber city, and once on fire it blazed as timber streets would.

Now the Renaissance was a century old when the fire took place. The art of woodwork was therefore well understood and widely practised at the time in which the Renaissance took place.

As to the word Renaissance I need hardly say, because everyone is familiar with it, that Renaissance, or new birth, means the new birth or revival of the classic learning, the works of the ancient Greek and Latin writers, and the interest in the ancient temples and sculptures of the Greeks and Romans, which these writings excited. Then, again, at the close of the fifteenth century the Roman Pontiffs had returned to Rome after long absence. There, as in Florence and other Italian States, these remains of classic art interested and captivated the Italians of the later fifteenth and the whole of the sixteenth century. It was not a new religion, but the enthusiasm it created was as great as if it had come down from heaven in the brain of some celestial messenger. Old Greek and Roman

* A Paper read before the Applied Art Section of the Society of Arts.



CHIMNEYPIECE IN PRIORY HOUSE, REIGATE.

names, Alexander, Hercules, Horace, and numerous others, were assumed or given. We hear of a Sir Julius Caesar in these sober islands. In short there was a standing out against such a mighty rush. Our particular subject, the art of woodwork, became Renaissance woodwork, and as such it remains in possession to the present day. Yes, even something of it survives in the jerry builders' roofs and partitions; much more in the roofs and stages of our great public halls and theatres.

As applied, indeed, to woodwork, the Renaissance affected the ornamentation rather than the construction of woodwork, and though it is called a new birth, it came to maturity very gradually in countries our side of the Alps.

In England the Renaissance art must be credited to Henry VII. His accession marked a new era, not in the arts alone, but in politics and manners. The feudal system came to an end at the battle of Bosworth; and the king was absolute.

As regards the new Architecture, Henry did little beyond erecting the splendid tomb made for him by Torrigiano, the Italian sculptor, now in Westminster Abbey. He built churches, though he was not fond of spending his money. But his churches were in the pointed Architecture still in fashion in his day, and we may refer to an example in his chapel at Westminster. Though it is in a debased phase, it still belongs to the English late pointed style. It is admirably constructed, and we recognise in it the work of a race of builders perfectly familiar with the system of vaulting, the weight and size of buttresses necessary to support it, and complete familiarity with their materials.

The most successful decoration of the chapel lies precisely in its woodwork, which shows no special character of Italian Renaissance, but which does show the hands of skilful constructors and carvers. The light and free fretwork of the stall canopies, and the admirable groups and figures in the round, carved under the *misereres*, may be compared with any mediæval stall carvings, showing what an excellent school of figure and ornamental detail carvers the country then possessed. As regards skill in wood construction we have proof in the adjoining roof of Westminster Hall, erected some two hundred years before. The "truss," or framed structure in ordinary roofs which throws a bridge across from wall to wall, is replaced at Westminster by a collar beam about a third of the length of the rafters, supported by a great cusped arch of timber that brings the weight of the roof half-way down the walls. Rows of small mullions with cusped arch-heads fill up the spandrels between these curved braces and the beams which they support, and complete the splendours of the construction.

Such were the structural and decorative attainments which the Renaissance woodwork was to replace. But, as we shall see, these old principles died hard.

The Renaissance Art and Architecture was introduced by the Tudor princes—gradually, no doubt. Guilds of carpenters, joiners, and carvers, under whom the workmen of the day had been educated, did not, and could not, easily unlearn a kind of art which they could put into execution by a sort of instinct. The elaborate drawings of modern Architecture were then neither provided nor required. A guild master could set his men to work, when measurements were settled. Small deviations, which do not affect the apparent correctness of measures, were overlooked or uncared for. Any examination of ranges of carved panel-



THE HALL AT HAMPTON COURT.



AN OVERMANTEL AT KENSINGTON. DESIGNED BY INIGO JONES.

ling, for instance, will show here and there such deviations. Little details in carving, such as small animals, birds, &c., are frequently found inserted to amuse the carver as he proceeded.

But these mediæval guilds survived only to the reign of Henry VIII., who seized their property.

Henry VIII. was not a builder of churches; just the contrary. He destroyed them on a large scale, and in a most barbaric fashion. But he was a builder of houses. As he was a man of considerable personal accomplishments, and well provided with money, his houses were splendid. The first and greatest of the artists he entertained was Hans Holbein, a Swiss, an accomplished draughtsman and painter, and an admirable designer, not only of portraits as the "Court Painter," but of goldsmiths' work and woodwork.

There is an elaborate drawing of a dagger-hilt and sheath by him in the British Museum, and another of a gateway from Whitehall into St. James's Park, decorated with elaborate woodwork. Where the drawing is I am uncertain; perhaps the library of Windsor Castle. Henry built for one of his queens a residence in Surrey, known as "Nonsuch," that is "unequaled." Judging from a representation in the background of a picture, it must have been mainly constructed of wood, and splendidly carved.

There is in the Priory House in Reigate a carved oak fireplace, formerly in "Nonsuch," but turned out of it after the Civil Wars, when "Nonsuch" was ruined or much injured. The fireplace has a circular seat on each side, each seat covered by a canopy of tabernacle work, the details of which—columns, triumphal arches, little figures of genii, all on a minute scale, and of a Classic character—are carved with astonishing delicacy and finish, e.g., Corinthian columns, 9in. or 10in. high (I speak from memory), are fluted, the capitals perfect in detail; each little genius, 4in. or 5in. high, correspondingly perfect; from seat to seat stretches a complicated trellis cut out of the solid, the bars of it shown in perspective, and a Tudor rose bush twining in and out. Above, two flying genii support the royal arms, sculptured to perfection.

Whether this fireplace is the work or design

of Holbein, we have no documents, as far as I know, to prove. It is his in character, and probably all the carved decoration of the place was from his drawings. Henry, like most of his royal contemporaries, liked to entertain such artists as could manage the masques, pageants and sports of their courts. Some of these required costly contrivances, shifting scenery and transformations, like those of our pantomimes. Such artists could also design dress, jewellery and furniture. Architecture they took to when required. It must be remembered that master builders of the sixteenth and seventeenth centuries were familiar with the details of mere building from long-known traditions, in this respect far in advance of professional builders of our day.

Of Holbein's architectural style there are examples at Hampton Court, and at Wilton-house, near Salisbury. As to panelling, so important an element in the finish of houses and churches, there is at Hampton Court a painting by Holbein representing the king seated with his family about him; and the chamber is panelled with elaborately drawn and gilded scroll work in each panel. Whether the painter painted from work actually existing or not we cannot say, but, seeing the splendour of such details of interior decoration as are still to be seen at Hampton Court, it is probable that he did. This is the more likely as the panelling in the picture is the back of a throne or State seat.

Henry had Girolamo da Trevigi also in his service, but no special work, as far as I know, is credited to him.

Another artist settled by his invitation in England was John of Padua, architect, but also an accomplished musician, in which capacity he seems to have served His Majesty. Very little is, at present, known of John, nor whether he hailed exactly from Padua or, as some say, from Venice. He built several of the more sumptuous country houses still existing. Longleat, in Wilts, is one. Wollaton, in Nottinghamshire, is sometimes said to be by John of Padua, but, I believe, more properly by John Thorpe.

John Thorpe belongs to the last quarter of the sixteenth century, and we know more of his work. Wollaton has been mentioned. Holland House, in Kensington, and Burghley House, near Stamford, are of his designs. A book of his studies is preserved in Sir John Soane's Museum, Lincoln's Inn Fields. Several other houses might be mentioned. He does not seem to have built timber houses nor, if we may judge from Wollaton, to have cared for decorative woodwork. The large houses built during the reign of Elizabeth have been, in many instances, only partially brought to completion internally by the original projectors. The woodwork is, therefore, often later in date and in style than the exterior,

and some of the best panelling of the time may be seen in Sizergh Castle and at Haddon Hall. Both these houses are old mediæval strongholds, with additions built at various times. In Sizergh the large drawing-room is beautifully panelled in small squares, the centre raised, and with delicate lines of moulding worked on it, in addition to the small moulded lines of rails and stiles.

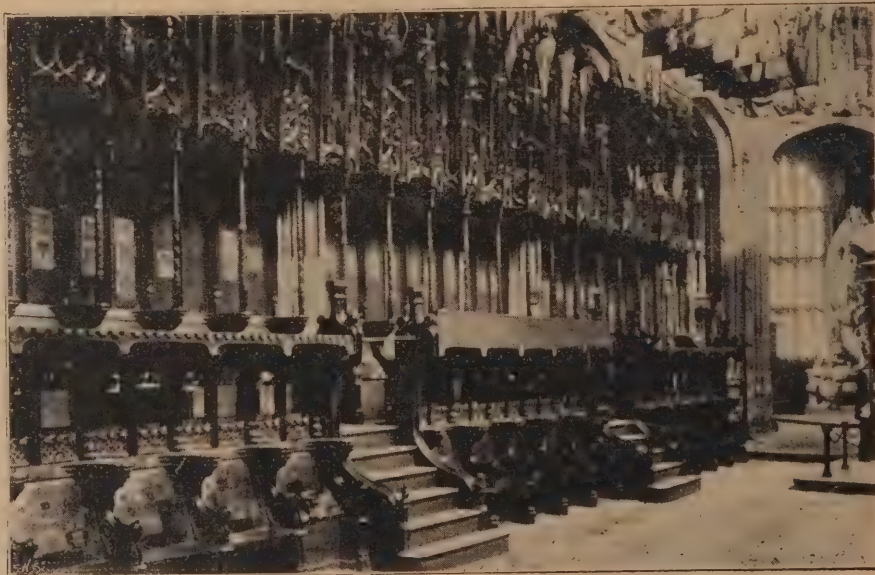
Besides carving, the Elizabethan period produced a different kind of woodwork decoration, a fine example of which has been removed from Sizergh Castle to the South Kensington Museum. The entire interior of the room is of inlaid work in various patterns of arabesque ornament. The divisions of the walls, the skirting, dado, and cornice are treated with special running borders, and lengthwise the walls are divided by pilaster-shaped panels. The woods which are used for inlaying are black bog oak and white wood of some kind, probably holly. Lime or poplar are probably also to be found in this ornamentation. The ceiling, in South Kensington, is a reproduction from squeezes of the original, still *in situ* at Sizergh.

One other example of Elizabethan woodwork is from Kenilworth, the palace of Elizabeth's favourite, Robert Dudley. The ceiling of the room is of oak, divided into large squares by mouldings, and the fireplace is surmounted by an heraldic escutcheon displaying the royal arms and mantling.

The reigns both of Henry and Elizabeth saw the founding of new families, and the heads, if not men of scrupulous delicacy of moral principle, were accomplished, and built up their fortunes and their houses with much skill and corresponding magnificence.

So far, then, as to the style of woodwork properly called Elizabethan. It is, however, difficult even when the name of the architect is known, and the date of the house, to be sure as to the date of the interiors as we now see them. Usually a new style in Architecture comes in gradually, and reaches completion after a lapse of years. But the Tudors were violent rulers, and imposed their will and their fashions in house decoration, as in much more serious matters, tyrannically. Still, notwithstanding these influences, the old ideas of the nation—the memories of the splendid England of the fourteenth century—died hard, and, when the last Tudor was buried, popular taste reverted in the direction of mediævalism. The Elizabethan of the seventeenth century is that which is seen in the large majority of our halls, manors, abbeys, and houses called by these and other names, and this mixed style is more genuinely English, and continues more popular, than the classic style of Jones and Wren, which belongs to the time of the later Stuart kings, and is of a confirmed academic character.

(To be continued.)



STALLS IN HENRY VII. CHAPEL, WESTMINSTER ABBEY.

WILLIAM MORRIS:

HIS ART, HIS WRITINGS, AND HIS
LIFE: A RECORD.*

BY AYMER VALLANCE.

THE selection of a writer to undertake the biography of a great man must always be a matter of difficulty. If a disciple be chosen, with the idea that thus a sympathetic interpretation may be placed upon the acts and facts of the life, and so present to the public a truer picture of the man, there is always the danger of a nauseating degree of praise, for the devotee scarcely dares to differ from a single act of his idol; while in any other case there is a possibility of such lack of sympathy, in one place or another, as to seriously lessen the chance of a full setting forth of the character and aims of the subject. The life of William Morris, by Aymer Vallance, is plainly the work of a devotee, though it gives one rather a shock to find a Latin dedication of a pronounced Roman Catholic type at the commencement, which shows that on one point at least author and subject were not in harmony. Whatever the opinions of William Morris may have been in early life, the ideal which he set himself to exhibit in his later days with so much charm (as in "News from Nowhere"), is fairly described in the quoted words of Mr. Frederic Myers: "Religion and philosophy disappear altogether; science and poetry are in the background; but we are left with the decorative arts, open-air exercise, and an abundance of beautiful and innocent girls."

Although in his preface Mr. Aymer Vallance disclaims any intention of writing a biography in the ordinary sense, his book necessarily is arranged very much on chronological lines, and for nearly half of its substance deals with matters in strict sequence. After a very short sketch of Morris's life until he left Oxford, where his life-long friendship with Sir E. Burne-Jones commenced, Chapter II. introduces us to the pre-Raphaelite brotherhood and its principles and aims, which appealed to him very keenly, though he never became actually a brother; and commences the subject of the early literary work, which is continued in Chapter III. Here the extensive quotation from the opinions of other people (mostly favourable, of course), which is so observable throughout the book, commences. These quotations occupy so much space as to suggest that the author felt it necessary to support his own opinions by those of people of more weight in the literary and artistic world. Out of the fourteen pages of which this chapter consists, more than six are quotations from reviews.

Chapter IV. gives an interesting account of the Red House, built by Mr. Philip Webb for Morris, near Bexley Heath, where he lived for about six years, till the increasing business of Morris and Co. necessitated his living in London; and Kelmscott Manor is similarly described in Chapter VII. The next chapter is devoted to a pretty full history of the establishment and proceedings of the firm, and is perhaps the most interesting in the book, being evidently written from data supplied by Morris himself, and by those who worked with him at one time or another, and copiously illustrated. The various crafts taken up one after the other are mentioned in their order, and many of the more important pieces of decorative work are described, the names of designers being given, with details as to the mode in which, in later days, the various parts of the designing were distributed. With such powerful designers as Madox Brown, Rossetti, and Sir E. Burne-Jones, besides Morris himself, whose feeling for colour was so fine, it is small cause for wonder that their stained glass attained so rapidly such a well deserved reputation. Tiles, wall papers, textiles of various kinds, dyeing, simple furniture—all these were taken up one by one with great success. On pages 84 and 85 is a long and valuable quotation from Morris's lecture on "The Lesser



ANGELS IN ADORATION. FROM A CARTOON BY WILLIAM MORRIS.

[Republished from Vallance's *Life of Morris*.]

Arts of Life," which refers to the designing of wall-paper, and says pretty nearly all that can be said upon the subject, though it may be thought to be a little over-exclusive when defining the sources from which patterns may be derived. Nature is, no doubt, the great reservoir at which each designer fills his little pitcher; but the convention adopted by a designer of long ago is often as stimulating to the imagination as anything brought direct from the fields, and this Morris's own practice frequently showed. See, for instance, the "Bruges" wall-paper, facing page 92, and the tapestry in silk and wool, facing page 96, both so fine and both so evidently suggested in arrangement or detail by ancient examples.

The mode adopted in the making of carpets and tapestries is fully described, and the extent to which various hands and minds have assisted in the production of the latter especially. It is wonderful that there should be so much unity in these, considering that several designers have generally assisted, and this fact rather goes to disprove the contention of some of the most modern architects, viz., that it is necessary for buildings to be designed by the same brain throughout, so that there may be unity of effect, not only in their structure, but in their ornament and furniture, and even in their external surroundings. The work of the firm failed a little sometimes in proportion. The borders of carpets, for instance, were frequently scarcely broad enough, the curly acanthus scroll, which Morris was so fond of, was frequently over large, engrossing the attention too much, and in the more decorated furniture the proportion of inlay to ground was sometimes defective—blemishes which Morris's own work has so much assisted us to perceive.

Chapter X. contains an account of his lectures, articles, and opinions, from among which a few of the last may be extracted as showing his attitude towards the arts of picture painting and design in general. "The aims of a painter should be: 1st, expression of imagination; 2nd, decorative beauty; 3rd, realisation of Nature; 4th, skill of execution. Success in any of the three first of these aims, together with the last, will give a picture existence as a work of Art." The aims of the P.R.B. were slightly different from these, as Morris described them in a lecture quoted on p. 14. Their root doctrine was Naturalism, the second requirement was an epical quality, and in the third place was put the ornamental quality. There is no doubt that he was right when he said, in continuation, "No picture is complete unless it is something more than the representation of Nature and the teller of a tale. It ought also to have a definite, harmonious, conscious beauty." And

one other distinguishing feature was needed, viz., Romance, which distinguished Burne-Jones's work supremely among those whose aims were of this kind. His opinion as to the eclectic art of to-day seems to have wavered back and forth. On page 243 he is quoted as saying: "If a man nowadays wants to do anything beautiful, he must just choose the epoch which suits him, and identify himself with that—he must be a thirteenth century man, for instance. . . . Whatever there is of the art of our own day that is worth considering is eclectic." While on p. 266 his opinion is stated to have been that it was utterly impossible for an organic and living style to be derived from an eclectic one.

When speaking of design before the Royal Commission of 1882, he expressed an opinion that "the French are above all things masters of style in the arts of design. . . . they can take two or three ugly things and combine them into a congruous whole, which looks plausible at least." At the same time, he said: "I think that in appreciation of beauty, in love for beautiful lines and colours, the French cannot be said to be superior to the English." It is curious that English designs should be much in demand in various parts of the Continent, while the English market still consumes vast quantities of those produced in France, notwithstanding the great influence which the teaching and example of Morris and others have had. He was also strong upon the necessity of the designer having technical knowledge of the manufacture for which he was designing. This seems an obvious necessity; but there are still designers, and teachers of design even, in England, who know very little of the technical processes used in the production of their designs, and who, therefore, frequently desire effects which are only to be gained with great difficulty, and are not in the end as beautiful as those to which the material lends itself. He held strong opinions, too, on the subject of Japanese art, maintaining that as Japan is subject to earthquakes, and, therefore, could never have large and imposing stone structures, but must content herself with edifices of wood; and as all earnest art is founded in Architecture; it was impossible that there should be any art of real account in that island. The fact of the buildings being mostly of timber should surely have been insufficient to prove this to Morris's mind, for Norse buildings also were mainly of timber, and Norse decorative work must have been highly esteemed by him, as his design was influenced by it; and it is curious that he should have so little appreciated Japanese drawing and painting, since the graphic qualities shown in it are just those qualities which

* William Morris: *His Art, His Writings, and His Public Life: A Record*. By Aymer Vallance. London: George Bell and Sons.

two pages later are declared to be specially characteristic of his own literary work: "His touch has the quality of being swift, and firm, and unflinching." This would describe accurately some of the great Japanese painters. And on page 409 is another sentence descriptive of Morris's design for book ornaments which is equally appropriate: "The decorative instinct in him was so supreme that whatever occurred most spontaneously to the artist's hand to design at the moment, that he did."

Notwithstanding his great achievements in the way of decoration, to many his literary work shows him at his highest. The power which enabled him to write "The Lovers of Gudrun," a poem of 750 lines, at a single sitting of twelve hours, is a power possessed by few, if any, literary men, and is another example of that Japanese dexterity, compounded of concentration and thorough knowledge of the subject, already referred to. Mr. Vallance treats the question of the poems and romances at great length, and sympathetically. Many of us remember how the appearance of "Jason" delighted us, and how the "Earthly Paradise" was read over and over again, the spell never failing by which the enchanted land opened before our eyes, through which we might wander for a time in the delightful company of the "idle singer of an empty day." The later books were none of them quite so charming, perhaps partly because no success can be repeated, but partly also, perhaps, on account of a certain artificiality not sympathetic to the great body of Englishmen, but which, in the opinion of some critics, was more in harmony with the author's latent energies than the earlier poems. The Romances followed, an endeavour to realise the conditions of primitive Northern life, and with their vigorous and picturesque prose delighted a certain section of the cultivated public; but it may be doubted whether they ever had anything like the influence which the poems of his middle period exerted.

There is a long chapter on the Socialist propaganda, which describes how rapidly that movement, which was intended to bind the workers of all nations into one harmonious whole, split up into many sects, which spent much of their energy in denouncing each other.

At this time he decided to set up a printing press for the production of handsome editions of desirable books, the first issued being his own story of "The Glittering Plain," published in 1891. For these books he designed all the ornaments as well as the founts of type, each letter being drawn large so as to make sure of its line and proportion, and then photographed the required size before being sent to the type-cutter. These books are of varying degrees of merit, but as a whole form by themselves a monument to which any man might trust his memory. He was very particular about the quality of his paper, requiring it to be made of rags only, for he foretold that the machine papers, largely made of wood pulp and clay, would perish; a result which actually occurred in a library in Brazil not long ago, where the only books remaining out of a large collection were the volumes of an old edition of Hume's "History of England," the damp and warm climate having converted the others into pulpy masses, owing to the bad materials of which the paper had been made.

William Morris was certainly one of those men who leave a broad and deep mark upon the time in which they live. He was very original, determined, and masterful, yet with the power of attaching men to him which is one of the qualities of the leaders of men, and had also the defects of his qualities, which were well known to those who had much intercourse with him, but need not be specified here. He was before all things, spite of the practicality which was shown by the success of his commercial undertakings, a dreamer of dreams and a seer of visions—many of which he had the good fortune to be able to realise, thanks to his possession of capital. A book which deals at such length with so interesting a character cannot fail to be interesting itself, though in this case a little prolix. Two appendices give a chronological list of Morris's published writings, and of the productions of the Kelmscott Press.

AN OLD DEVONSHIRE CROSS.

RESTORATION AT BUCKLAND MONACHORUM.

THE old-world village of Buckland Monachorum celebrated the restoration of the village cross a few days ago. The village is charmingly situated on the fringe of Dartmoor. Buckland Abbey was founded by St. Bernard of Clairvaux, at the instance of Amicia, Countess of Devon, in the thirteenth century, and it would appear that at one time a market was held in the village. There was every evidence that the old stone cross in the village had been removed from its original foundation, and signs were not wanting that a market-square had existed. Judging by the stones remaining the cross must have been of an imposing character. The remains of the old cross were found to be in a very imperfect condition. Considerable portions of the four basement steps and a very large and massive plinth stone were found, but nothing more, although a careful exploration of the district



THE RED HOUSE. EARLY MORRIS GLASS.

[Republished from Vallance's Life of Morris.]

brought to light many ancient worked stones. Having consequently very little to guide them to a true restoration, the matter was placed in the hands of Mr. E. Sedding, of Plymouth, who had made a special study of such subjects. He had no doubt that the remains were part of

A LANTERN OR GABLED CROSS

with figures, as all such large crosses of the sixteenth century invariably were, and on that idea it was restored. That it might entirely harmonise with and illustrate the parochial history, the figures of St. Andrew the Apostle, and St. Bernard, the founder of the Order of Monks at Buckland Abbey, have been placed in two of the niches, and in the other two are shields, one with the arms of the diocese and of the Bishop of Exeter, and the other armorial bearings of the Abbey—a lion rampant—given it by Amicia, Countess of Devon, in the year 1278. The work of restoration was done by Mr. Philip Bloye, a native of the village.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
June 1st, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

WE are pleased to learn that the pretty design for a house, by Mr. Francis W. Bedford, which we illustrated last week, exists in bricks and mortar. The house is known as Weetwood Croft, and is situated near Leeds.

MR. HOGARTH, the new director of the British School at Athens, has been continuing the excavations in the island of Milo with success. The ruins of an Acropolis of a remote period have been laid bare, together with the remains of three cities, superposed one on the other, two of them have proved rich in fragments dating from the Mycenaean epoch. Professor Gardner, a former director of the school, has gone to Milo, accompanied by a score of students of University College, London. It will be remembered that Milo furnished the finest piece of antique statuary extant, the famous Venus of the Louvre.

MONEY would be well spent by Truro Town Council in improving the river immediately below the town quay. At present the outlook is far from pleasant to the large number of excursionists on the beautiful River Fal, while the narrowness of the approaches to the quay give difficulties, not always free from anxiety, to those in charge of vessels. It is proposed by the River Committee to spend close upon £2000, and there appear to be other improvements in view. Judging from the discussion at a recent meeting of the Council there is every probability of the outlay being sanctioned if a desirable right-of-way can be obtained, and it is hoped that the landowner and others interested will give the Council every reasonable facility in this matter.

THE French Gallery of Pall Mall has this spring a very pleasant and reposeful exhibition, in which the Barbizon schools, the modern Dutch landscapists so fashionable just now, and the English schools of present and past times play an equal part. The examples of the Barbizon masters, if not of imposing dimensions or commanding excellence, are for the most part interesting. Very curious is the sketch in oils by Jean-François Millet, "The Good Samaritan;" there are two or three Corots of the usual blond, delicate beauty, and two landscapes by Daubigny of an intimate pathos and charm. Of a Constable-like breadth and virility of treatment is the important study by Théodore Rousseau. M. L'Hermitte's landscape, "Harvest Time," serves but to prove once more that this excellent artist is a draughtsman rather than a painter—that black-and-white and not colour is his true field. In M. Gérôme's best manner, "The little Oriental piece," "In the Mosque," which was quite recently seen at Christie's. The pièce de résistance in the British section of

the exhibition is J. W. Oakes's large transcription of English scenery, "The Fallow Field." So true is this picture in its suggestion of moisture-laden atmosphere, so sincere and naïve in its expression of a scene too simple to attract landscape painters of the present generation, that it may fairly take rank with the better French Art of the generation to which it belongs. Among the famous Dutchmen represented are Josef Israels, Mesdag, Jacob Maris, Ter Meulen, Neuhuys, and Anton Mauve. The latter is seen to great advantage in a characteristically sad scene, "After Work." In the decline of a grey afternoon, scarcely cheered by a few scant rays of pale sunlight, the husbandman and his weary horses are seen receding from the foreground straight towards the distant horizon. Vastness, solitude, and uncomplaining submission to the melancholy of the sad, leaden hours are all conveyed here without any departure from artistic conciseness or the modesty of the simplest and most pathetic truth.

THE fourteenth annual exhibition of the Home Arts and Industries Association has recently been held at the Albert Hall. The subject most widely taken up appeared to be wood-carving, and many of the specimens on view not only displayed a high degree of technical skill, but are also of considerable size and importance. Leather work is very popular. Homespun fabrics of various sorts form another department that is well represented, one of the most interesting stalls being that which contains samples of the work done by cottagers in the neighbourhood of Windermere. The attempt to revive the lace-making industry seems to be meeting with fair success, and a considerable amount of home-made lace is on view. Other industries which the association fosters are represented by exhibits of basket-making, pottery, metal work of various sorts, needlework, embroidery, &c.

LONDONERS have for many boating seasons past noticed the boards by the riverside near Twickenham announcing that the Peel Estate at Marble Hill was to be let or sold, and have wondered what would be the end of the fine house and of the beautifully wooded ground fronting the Thames here. For some eight or nine years the place has failed to find an occupant or a purchaser, and it has latterly seemed likely that it would be eventually sold for building purposes—a prospect viewed with dismay by all who would keep the sylvan beauties of the Thames above London unspoiled. It now seems likely that the estate will be purchased by the Twickenham District Council for a public park, thus preserving the rural beauties of the foreshore. The estate occupies sixty-three acres, with a house in its midst. Part of the cost of purchase may be recovered by selling portions of the land away from the river for villas.

Nor for the first time, by any means, one of the galleries of the Fine Art Society, in New Bond Street, is filled with choice and treasured specimens of seventeenth and eighteenth century Art, comprising some of the most perfect examples in the world of miniature painting, side by side with those drawings in pencil and crayon completed with touches of colour, which were so characteristic of the period when everybody who was anybody, and many others who were nobodies, were as a matter of course painted or drawn "in little." Added to these is an assortment of those engravings that are now so much sought after by collectors.

FURTHER information has reached me, says a writer in the City Press, concerning the proposed purchase of a part of the site of Christ's Hospital by the authorities of St. Bartholomew's. There is no intention, it appears, of securing the Newgate Street frontage with a view to improving the position of the hospital from an architectural standpoint. The scheme is, indeed, confined to a proposal to acquire part of the site facing Little Britain, so that the hospital buildings may be rendered uniform in appearance, and that the accommodation

provided may be extended in the way the necessities of the case demand.

An interesting find is reported to have been made at Treffgarne, near Haverfordwest, in the course of excavations for building purposes. When engaged digging out for the foundations of a house, the workmen came across an ancient stone for grinding corn by hand. The stone is very like those even now used in India, especially as a form of hard labour punishment. An antiquarian suggests as a reason why the stone was hidden in the ground that the place was probably the site of a house where the grinding of corn was carried on surreptitiously and without the knowledge of the lord of the manor, who may have held the concession of the right to have all the corn grown in the manor ground at his mills. This is not the first stone of the kind found in the neighbourhood.

A CORRESPONDENT states that there has just been opened out near the village of Gwaenysgor, which lies between Prestatyn and Rhyl, a most interesting "bone cave." It is situated on the farm known as "Gop," the property of Mr. M'Laren, M.P. Some years ago the mountain was explored under the direction of Professor Boyd Dawkins, Manchester, and a cave was discovered in which were found skeletons and implements of the polished-stone period. The cave just opened out had been known to exist for some time; or, rather, its existence had been suspected, its masked mouth, filled with débris, having been located. Recently operations were commenced and the débris removed, and the cave has been sufficiently cleared to prove that it is a good specimen of the bone caves found in Wales.

Now that Parliament, by its rejection of the Westminster improvement scheme, has definitely decided that private speculators must take no part in the improvement of London, it is to be hoped that the London County Council will realise the responsibility that rests upon it. That the ratepayers at large, and not merely a few capitalists, should benefit financially by a great public improvement is theoretically a truism, but, at the same time, it is a distinct injustice to the speculators as well as to the community that, when the Council declines to move, Parliament should intervene and prevent a private body from benefiting themselves as well as others. We have waited long enough for the Council; but so far there appears to be very little possibility of their taking action. Now, however, that Parliament has shown its hand, perhaps the Council will take the hint, and give expression to the wishes of the ratepayers generally by proceeding in earnest with the several improvement schemes that have been hanging fire owing to the Utopian theories of certain ultra-Radical members.

THERE has just been opened at the Dowdeswell Galleries a series of water-colour drawings by Mr. Hampson Jones, wherein he embodies his impressions of a trip to Ceylon and Burmah. This artist is a believer, when water-colour is used, of swift records of vivid impressions, and he is particularly happy in the presentment of native figures in their bright-coloured attires issuing from Buddhist temples, or grouped about the many shrines that surround the famous Shwe Dagon Pagoda at Rangoon; or, again, of the pilgrims that fare every fourth year to the Dalada Maligawa at Kandy, there to witness the exposition of truth. The drawings are freely executed, there is no over-emphasis of detail, and the collection as a whole is distinctly pleasant.

MR. D. W. STEVENSON, R.S.A., has just modelled in the clay the colossal statue of Burns for Leith. The figure, 9ft. in height, is alert and suggestive of youthful life. Burns stands firmly on the right foot, with the left slightly advanced. He wears the coat of the period, with open throat and ample collar and lapels; and his attire further consists of long waistcoat, kneebreeches, ribbed hose, and shoes. A plaid, thrown over the left shoulder, has been effectively arranged both for front

and back drapery, the back view having been equally carefully considered. The right arm is carried across the breast, and grasps the edge of the plaid; while the left, hanging down by the side, holds his hat. The figure will stand on a pedestal 10ft. high.

CONSIDERABLE local interest has been aroused by an alleged desecration in the churchyard of Kilmaveonaig, near Blair-Atholl, Perthshire. The church, which is a small edifice, is centuries old, and, it may be mentioned, contains in its belfry the famous bell of "Little Dunkel." While carrying out extensive alterations and renovations in the church, the contractor came upon a number of skeletons. The larger part were collected and reinterred, but the remaining excavations, which contained many fragments of bones, were left outside the church. It was alleged that the remains discovered were those of the Robertson family of Lude, and the matter being brought under the notice of Mrs. Robertson Matheson, secretary of the Clan Donnachaigh Society, that lady paid a personal visit to the churchyard lately, and at the same time spoke to a number of the residents on the subject. A special meeting of a local sub-committee was held at the churchyard. An exhaustive statement was read from Mrs. Robertson Matheson, and the committee entertained no doubt whatever that a large quantity of the soil, containing fragments of human bones, was excavated partly from the burying vault of the Robertsons, lairds of Lude, and partly from the floor of the church generally. The committee resolved to build a retaining wall at the foot of a slope at the back of the church, thereby forming a pit in which all the excavated soil will be placed.

THE latest contribution to the smoke abatement controversy that we have seen is a pamphlet by Mr. W. Nicholson, Smoke Inspector, Sheffield, published by the Sanitary Publishing Company, and entitled "Practical Smoke Prevention." Is there no remedy for the emission of thick, black smoke from boilers and furnaces? Mr. Nicholson answers, as the Smoke Abatement League have answered, that there is. In the bulk he has very little that is favourable to say of patent appliances placed upon the market as infallible methods of removing the nuisance. They have, he contends, invariably failed to realise the expectations formed of them, and to end or minimise the trouble. At the same time, he is strong in his desire to correct the impression which he has found to largely prevail that manufacturers have done nothing in recent years with a view to prevent the pollution of the atmosphere. Hundreds and thousands of pounds have, he says, been spent by some manufacturers through the serving of a simple notice to abate, but still there is the smoke.

In treating of the means by which practical smoke prevention can be secured, Mr. Nicholson has much to say on common-sense conditions of working, firemen's skill and training, and the admission of air into boiler and furnace; but his main factor in the bringing about of a better state of things is the man at the wheel, so to speak. He says as much as this in his introductory pages. "My aim," he remarks, "is to address, in a few short, simple sentences, all persons who are interested in this question, but more especially do I speak as an engineer to engineers, engine-tenters, boiler firemen, and furnace-firemen. To these I would say that smoke prevention is entirely in their hands, in spite of any appliances, automatic or otherwise." A statement such as this surely weighs in favour of an energetic application of the provisions of the Public Health Act in the case of persons guilty of the particular offence under notice. There is the less excuse for the toleration of ignorant or lazy stoking, inasmuch as Mr. Nicholson himself leads the reader to infer that in other respects manufacturers have shown willingness, often at great expense, to comply with the statute.

MESSRS. CHRISTIE, MANSON, AND WOODS concluded on Monday week the sale of the ancient

and modern pictures and water-colour drawings of the late Mr. Joseph Rushton, of Monk's Manor, Lincoln, the day's sale realising £2998 10s., showing a total of £44,995 13s. 6d. for the entire collection of 237 lots. The few noteworthy drawings in the last portion were:—E. Ellis, a moor scene, with figures and sheep—37 guineas; two by T. B. Hardy, the Doge's Palace, 1879—46 guineas, and San Giorgio, 1879—52 guineas. The pictures included:—J. Collier, "The Child Bride," 1883—95 guineas; H. Dawson, a timber yard on the bank of a river, with barges—100 guineas; G. E. Hicks, "Cinderella," 1878—62 guineas; W. Logsdail, a view in Italy, with bullock wagon and figures on a road, 1891—56 guineas; J. B. Pyne, "Thames Recollections"—76 guineas; G. Koller, Philippine Wesler, clandestinely married to the Archduke of the Tyrol, imploring pardon with her two children at the feet of the Emperor Ferdinand I. at Prague, 1551—110 guineas; and a work after Bonifazio Veronese, by Teniers, the Virgin Mary and two saints seated in a garden, on panel, 16in. by 17in.—220 guineas.

In their official report, the Executive Council of the Amalgamated Society of Joiners and Carpenters, which has 738 branches and 53,000 members in various parts of the world, describes its business in Capetown, Cape Colony, as fair, in the Johannesburg first branch as dead, in the Johannesburg second branch as very bad, in Kimberley (Cape Colony) as overstocked, in Pietermaritzburg (Natal) as declining, in Port Elizabeth (Cape Colony) as moderate, and at Pretoria (Transvaal) as dull. The Amalgamated Society has nearly 600 members in South Africa.

The Daily Mail describes a "dainty model flat at 7, Sloane Street":—"The dining-room, with its walls of deep rose-red, thrown up by the black-framed pictures, with touches of yellow in the soft silken hangings, suggests at once that atmosphere of comfort and ease and enjoyable stimulation. The French drawing-room, all green and gold and rose-hued, with its pretty French furniture in gilt and brocade, forms a charming background for pretty face and pretty frocks. Who could not work, too, in the Jacobean study, with panelled walls and medallioned windows, and little blue-tiled Dutch fireplace, and reposeful tones of lapis lazuli blue? The bedroom is arranged in softest blue and white, with Sheraton furniture. Even the tiny hall of a London flat is converted by magical arrangement into a cosy boudoir, gemlike in colour, with its turquoise blue walls, soft white flowers, and dark relief of brown in furniture and floor."

Drs. REICHEL and WILHELM, secretaries of the Austrian Archaeological Institute, have, a Vienna correspondent says, made some interesting discoveries in Northern Arcadia in the famous sanctuary of Artemis in Lusoi. The site of the temple is 4500ft. above the level of the sea in a beautiful mountain country with Mount Chelmos on the right and the wonders of the Styx waterfalls below. The Austrian men of science have laid bare the terrace of the sacred place, a semi-circular building, and a simple propylaeum. Both buildings had stone foundations, the walls being of clay bricks. The place must have been destroyed by fire. Besides fragments of the building, votive objects were found in great numbers, especially terra-cotta figures, small bronzes remarkable for their splendid patina, and on the doorposts was a series of Grecian bronze inscriptions of the fourth and third centuries before Christ. These promise to be of great interest.

An interesting antiquarian discovery has been made in the small church of Radanito, in the Bucovine. It consists of a rich tapestry embroidered in gold representing the Death of Christ. It is in a wonderful state of preservation, and the inscription is perfectly legible. It states that "this tapestry was the gift of Alexander the Good, Prince of Moldavia, who, in 1409, built this church at his own expense."

SOME four hundred black and white drawings and sketches are now on view at Cutlers' Hall, Warwick Lane, Newgate Street. The collection forms Messrs. Cassell and Co.'s sixteenth annual Exhibition, and the pictures shown are the originals from which the illustrations in the firm's various publications have been or will be produced. Many black and white artists of eminence are represented, and styles and subjects are pleasingly varied. Mr. W. S. Stacey has a fine series, entitled "Women of the Bible." Mr. H. Railton, in "Ightham Mote," Kent, has found a congenial subject for a number of exquisite interior and exterior views in the perfection of pencil work. Mr. Holland Tringham has some fine architectural sketches, whilst Mr. J. Pennell shows two very choice specimens of pen-and-ink drawings, the subjects being the interiors of "The Charterhouse Chapel" and "The Hall, Charterhouse." Both possess a characteristic boldness and, at the same time, ample detail. The late Mr. Fred Barnard is represented by a large number of amusing character studies. Mr. H. E. Tidmarsh has two City views, both excellent—one, entitled "London Bridge," showing the crowded state of the river about the famous structure; and the other, entitled "View from the Monument," showing the river winding seaward below the Tower Bridge. A number of Mr. Wal Paget's illustrations to "Robinson Crusoe" are hung, while a very choice little picture represents "Cromwell on His Way to London." The Protector and a straggling party of horsemen are leisurely crossing the open country. In the foreground Cromwell's spaniels are just bursting through the sedge and rushes that fringe a wayside pool, startling up the wildfowl and compelling the attention of the riders. The charm of the picture lies in the fact that Cromwell and his satellites are caught at a moment when the inevitable "ironside" temperament has been abandoned. All ages, climes, and seasons have been laid under contribution by the artists, and, whilst it is impossible to mention more than a few, it is equally impossible to avoid being struck by the strength and cleverness of the majority of the exhibits. Some of the landscapes—at home and abroad—are delightful, whilst the many military scenes are stirringly portrayed.

In the Queen's Bench Division last week Mr. Justice Grantham and a special jury heard the case of Marcy v. Beckett, an action by Madame Blanche Marcy, a dealer in works of art, in business in Bedford Square, against Mr. Ernest W. Beckett, M.P., to recover £1090, the balance of an account for certain pictures alleged to have been purchased by the defendant of the plaintiff. The defendant said the purchase was conditional. Mr. Marshall Hall, for the plaintiff, said the plaintiff had dealt with the Rothschild family for many years, and was introduced to the defendant by Baron Ferdinand de Rothschild, who was well acquainted with the value of works of art. In 1896 the defendant went to the plaintiff's place of business, and purchased an antique sofa of the Louis XVI. period for £140. The sofa was sent to the defendant's London residence, but it was not paid for at the time. On April 7th, 1897, the defendant again visited the plaintiff's place of business and saw four pastels, signed François Boucher, representing Music, Dance, Song, and Painting. François Boucher was a well-known artist, who was born in 1703, and died in 1770. Eventually the defendant agreed to purchase the pastels for £1450. The defendant also purchased a picture by François Mieris, the subject being a lady eating oysters; and a portrait of Philippe le Beau, the beautiful father of Charles V. After the defendant had made the purchase he gave the plaintiff a cheque for £500 on account. The following day the plaintiff sent in her account, giving credit for the cheque, and subsequently the defendant wrote to her to the effect that he was only to take the pastels on his being satisfied by an expert that they were genuine. The plaintiff's case was that though she believed the pastels to be genuine, she gave no warranty. The defendant asked the plaintiff to take the pastels to M. Mannheim, art expert, and he referred her to

M. Feral, an expert in Paris, who examined the pastels, and said they were very beautiful pictures of the time of Boucher, though he could not certify that they were painted by Boucher. When M. Feral was examined on commission for the purposes of the present action, he said that the pastels were not genuine. Mr. Marshall Hall submitted that there was no warranty. It was held that a warranty had been given and that the pastels were worth £200.

HEXHAM ABBEY is a place of historic importance. Within the past few days there has been observed a serious shrinkage at the furthest pillar of the northern transepts. There are ominous looking cracks in the arch above, and to avert serious damage to that part of the noble structure a large outlay of money will be needed. Probably the erection of a buttress or arch against the north wall may be required. The matter is likely to receive immediate attention. At one time interments took place in the transepts, and it is surmised that a former sexton had dug too near this particular arch, and so caused the shrinkage.

AN interesting discovery of caves has just been made about four miles from Maidstone and one and a half miles from Hollingbourne. A short while ago some boys found an entrance to the caves, and on the matter being reported the locality was explored. It was found that the caves were so extensive and remarkable that it was decided to make a show place of the caverns. Lamps have accordingly been fixed throughout the whole of the caves, which extend for miles, and a cord is run throughout, so that visitors may not lose their way. The origin of the caves can only be conjectured.

THE members of the legal profession in Leeds will shortly favour the local authorities with their views on the new Building Bye-Laws of the Corporation. As a matter of fact, the Leeds Incorporated Law Society have been engaged for two or three months past considering the subject, which they regard as one of great importance. The bye-laws were submitted to them by the Town Clerk, who inquired if they had any remarks to make, and in due course, we understand, a detailed report will be prepared and handed in. The various questions, we are informed, have been gone into very carefully, and it has been decided to draw the attention of the authorities to a number of points in which, it seems to the Society, some amendment is required.

THERE will be considerable excitement among the leading sculptors as to who will have the opportunity of attaining distinction through the commission of the statue of Mr. Gladstone. Mr. Gilbert has probably put himself out of court by his recent failure with regard to the Bright statue, and presumably it will rest between Mr. Onslow Ford, Mr. Thornycroft, Mr. Bates, Mr. Frampton, and Mr. Brock. None of these should have much difficulty in producing a work which will put all its surroundings in the north transept of the Abbey into the shade.

It is expected that within the next month or two the new electric railway connecting Waterloo with the City will be in full working order. The railway is constructed in the same way as the City and South London line, consisting of two huge iron tubes, one for up and the other for down traffic. These tubes are now actually laid between Waterloo and the company's City station, which lies under Queen Victoria Street in the vicinity of Bucklersbury, but the electrical apparatus is not quite ready, and further, the exits from the City station have yet to be completed. The exits are being made by the Central London Railway Company, and the two first to be opened will be at Mappin and Webb's corner and the corner of Walbrook respectively. A subway will connect the Central London and the Waterloo and City lines, and when the first named is in working order passengers by either railway will have the choice of some half-dozen exits in the neighbourhood of the Bank.

THE ARCHITECTURAL ASSOCIATION DINNER.

PROFESSIONAL TOPICS UNDER DISCUSSION.

THE Architectural Association has reached the close of another session. The *finale* came last week. The work of the winter is at an end when the annual dinner comes round, and this signal event happened on Thursday at the Holborn Restaurant. Matters were on a lesser scale than was the case a year ago, when, it will be remembered, the Association celebrated its jubilee. This year, differing from last in this respect, the guests were all directly or indirectly connected with the Profession. Mr. Hampden W. Pratt, the President, was in the chair, the company including Dr. Garnett and Messrs. H. T. Hare, W. D. Caröe, F. W. Pomeroy, Beresford Pite, A. R. G. Fenning, C. H. Bedells, W. H. Jamieson, Professor F. E. Hulme, H. B. Ransom, W. A. Pite, E. O. Sachs, E. A. Runtz, G. McLean Ford, G. M. Nicholson, W. Eckstein, G. Sherrin, G. H. Fellowe-Pryne, E. Fellowe-Pryne, H. Fellowe-Pryne, A. W. Johnston, C. H. Smith, H. Lovegrove, H. B. Creswell, F. W. Macey, F. H. A. Hardcastle, H. Tanner, H. Tanner, jun., F. J. O. Smith, J. O. Smith, B. F. Fletcher, A. H. Tiltman, R. Savage, A. Conder, A. T. Walmisley, T. C. Cunningham, S. B. Beale, F. G. F. Hooper, F. R. Taylor, E. L. Harrison, J. Neale, W. J. Locke, R. Direks, E. H. Sim, D. G. Driver, A. O. Collard, F. Sills, H. J. Leaning, C. D. Imhof, A. S. Flower, F. R. Farrow, P. A. G. Wood, A. C. Breden, F. T. W. Goldsmith, H. A. Satchell, Clarke Edwards, H. J. Moodie, W. G. B. Lewis, A. W. Weedon, P. Buckman, A. Wood, G. A. Cracklow, C. Brée, J. H. Wilson, F. D. Clapham, G. B. Carvill, Leonard Butler, W. H. May, S. Constanduros, J. E. Franck, T. W. Aldwinckle, jun., J. G. N. Clift, and W. E. Davis.—The president opened the toast list with "The Queen." He referred to the Association's dual celebration of Her Majesty's Diamond Jubilee and their own jubilee a year ago. The toast having been honoured, Mr. Pratt proposed "The Royal Institute of British Architects." For many years past, he said, the Association had not had a dinner without having ranked this toast in the forefront of its list. He proposed in a few words to put before them

THE INSTITUTE IN ONE OR TWO OF ITS ASPECTS.

Firstly, he would take the Institute as it was regarded from outside its ranks. In high official circles it was looked upon as being at the head of the profession. This was no doubt the right position of the Institute. So far as the public was concerned, it was doubtful whether the Institute—or, for that matter, the whole body of architects throughout the country—was recognised as it ought to be. Of course, there were many able members of the Profession who were not in its ranks, and, personally, he held this to be a calamity, not for the Institute, but for the Profession. So long as this was the case architects would not be able to speak with that united voice which they ought to command. He would like—and in this he was supported by the feelings and thoughts of a good many, if not all, of the members of the Association—to see the Institute universally acknowledged as the one representative body of the Profession. He had not been able to ascertain what position another society, which he would not name, held among architectural societies. If the time had not yet come, he hoped it was not far distant when the society to which he referred would dissolve itself and throw in its lot with the Institute. Then what did they find was the view of those within the Institute ranks? Well, there were many architects who considered that the Institute might do a good deal better than it did at present, that it might be governed a good deal better than it was, and there was a feeling abroad that the Institute required a good deal of alteration in the constitution of its council. It was not for him to say what were his views in regard to these matters, but it was a sign of the times, of the

democratic age in which we live, that such feeling should exist. Then there was a body of men in the country who looked upon the Institute as the leader of the Profession. He referred to the societies which are allied to the Institute. There was no doubt that those allied societies looked up to the Institute

AS IF ON A PEDESTAL.

and regarded it as exercising considerable influence for the benefit of the whole Profession. He had been much struck by this attitude towards the Institute at a recent gathering of the allied societies at Liverpool. At the same time, the societies did not forget to say that they constituted one of the elements of the power of the Institute. Now let them for a moment review the case from the Association's point of view. During the last few years the two societies had been in a closer alliance than existed when he first joined the Association. This union had made for mutual benefit. As they knew, the Association had for some years past been represented on the council of the Institute, and they thus had an opportunity of making their voice felt in matters vitally affecting the Profession, whilst at the same time they also improved their position as a teaching body. It was a matter of satisfaction to note that the Institute was to-day ever ready to help the architectural student, and though they were not of course prepared to offer practical tuition, they had during the last few years annually granted the Association a sum of £100, which they did not scruple to accept, regarding it as money which eventually found its way back into the coffers of the Institute in the shape of new members trained by the Association. In this respect the Architectural Association was accomplishing a work that was undoubtedly of great benefit to the Institute, for there could be no doubt that the success of the R.I.B.A. examinations had been very much aided by

THE SYSTEMATIC COURSE OF TRAINING

given at Great Marlborough-street. In this respect they had been working hand in hand with the Institute, and if they did not agree altogether with the way the examinations were carried out, they, at least, had to acknowledge that considerable benefits were derived thereby. He was sure the members of the Association would agree that they ought to do what they could to uphold and support the Institute, which was doing what it could to further the interests of the Association. Both societies were animated by the same spirit—that spirit in which they were endeavouring to raise the tone of the Profession and to advance their Art. The speaker regretted the unavoidable absence of the President of the Institute, Professor Aitchison, R.A., but he was pleased to see present one or two members of the council, including Mr. Caröe, whose name he coupled with the toast.—Mr. Caröe, in reply, said that no one could feel more strongly than he did the absence of Professor Aitchison, who was the only person fully qualified to return thanks for the toast. The present was not an occasion upon which they talked politics, whether politics as generally known or architectural politics, and he, therefore, did not propose to enter into any political question. He was sure he could say that the Institute as a body, and certainly as represented by its council, felt that their life-blood to a large extent ran in the veins of the Architectural Association. It was a truism that youth was the hope of age, and he certainly thought it was a truism that the Association was the hope of the Institute. He was fully aware of the increasing and excellent part which the various societies in the country took in the Institute's proceedings, but at the same time the governing body of the Institute and the Architectural Association were closer together here in London, and there was no doubt that the cordial feeling existing between the two bodies was not only of

IMMENSE ADVANTAGE TO THE PROFESSION

in general, but to each body; that this cordial relationship did exist was proved by the fact that the present was the seventh year that the Institute had contributed to the funds of the Association. The Institute looked to the

Association; it was grateful for the honour of this toast, and for the prominence given to it. What was most to be dreaded, the speaker proceeded, was the lack of enthusiasm. There were so many toils and turmoils surrounding the practice of their Profession, that the time required to organise and keep going these important societies was a serious matter, and therefore they required new blood and fresh ideas constantly grafted on to the old. He, for one, agreed with what Mr. Pratt had said as to the reform in the Council of the Institute. He did not know whether this sentiment would be echoed by every member of the council, but he had often thought that a rotary system, whereby the members should retire after a short period of office, would be attended by very desirable results, giving, as it would, a wider opportunity to others of entering the council, whilst at the same time leaving the return of old members possible by election. Many of his hearers had, no doubt, been struck by a model design for a church in this year's Academy, and it was delightful for the speaker, as a past member of the Association, and as a member of the Institute's Council, to find that this design was by a member of the Association, who had been trained in the Association's school. It was to men of this class, and those at the head of these schools, that the future of Architecture, and therefore the future of the Institute, depended. He thanked them heartily for the toast.—Dr. Garnett, in proposing "The Architectural Association," said that when he accepted the invitation to be present at that dinner he thought that the contract would be fulfilled in its simplicity, but that afternoon he had received a letter which he could only compare to

A BILL OF EXTRAS.

calling upon him to undertake a toast. He could not pretend to discuss the internal affairs of the Association, but he knew it was carrying on a most valuable, most efficient, and most important work. In the first place, its teaching for the examinations of the Royal Institute of British Architects, as carried on at its classes in design and watercolour drawing, was such as could not be obtained elsewhere. It was a matter of satisfaction that young architects were afforded these facilities for becoming acquainted with the properties and the limitations of materials. The younger members of the Profession would see the value of training their hands to use tools as well as pencils. But a work more important than this, which was being carried on by the Architectural Association, was its fortnightly meetings—meetings for mutual improvement, which was the best kind of improvement. Not only did they help one another by reading papers, but they were occasionally visited by experts, who read papers which could not be got at any cost from any other source. In this work the Architectural Association had been engaged for many years, and he hoped these meetings would go on increasing in popularity. The speaker further eulogised the objects of the Association, and remarked that a young member going to London might look to the Association for moral as well as intellectual strength, which was not, he thought, forthcoming from any other source. For all its work the Architectural Association was worthy of the admiration of them all, and they would all drink to the health and continued success of the Association. May it flourish for ever! With the toast he coupled the name of Mr. Hampden Pratt.—The President, in acknowledging the compliment, said this toast was, of course, always honoured at their annual gatherings. They trusted that the Association would exist, if not for ever, as Dr. Garnett had said, at any rate for many a long year. Dr. Garnett had seized upon the real vital points of their existence; the Association was an Association; no name could better express

ITS OBJECTS AND PRINCIPLES.

It was their endeavour to work together mutually as a band of young men, associated for mutual help and with a common desire to advance the Art they had adopted. The kindly interest that was taken in the Association

was shown by the great assistance received to-day from very many influential men in the Profession, who visited their schools of design and gave the students the benefit of their advice and their criticism. Such help could not be obtained in any other way but through the medium of their society, which had for its motto "mutual help." It would be the death of the Association if this bond of union were broken. As they looked around and saw how education was advancing, technical education more particularly, they recognized that the Association, if not threatened in its existence, was at any rate put upon its mettle, and they endeavoured to draw their bond of union closer. The object of the Association was not merely to give the students a systematic education, but they desired to promulgate the idea of friendship. They knew very well that if they attended the Association meetings in a mechanical way they would lose all heart and spirit in their work, a great feature of which, was, as had been said, their fortnightly meetings. The papers read there were such as could not be heard at any other Society in the country, and they often regretted that some of the older members did not attend to take part in the discussions, which were most valuable and most helpful, not only to students, but also to fully-fledged architects. The enthusiasm referred to by Mr. Caroe was certainly not wanting in the Architectural Association. It would be remembered that a matter debated at their Jubilee celebration a year ago was the

PROVISION OF MORE COMMODIOUS PREMISES for the Association. It would perhaps be thought that the day was very far distant when something in this direction would be accomplished. But it was no use being in a hurry, and he ventured to think their deliberation would ultimately be rewarded by very pleasing premises. At the present time they were looking for a site, and, although they had nothing to show at the moment, it would be seen that the matter had not escaped attention. He was pleased to say the Association had improved its financial position during the year, and the result of the last twelve months' working would be to show a better balance sheet than had been seen for many years past. He warmly returned thanks for the kindly interest that was ever taken in the Association.—Mr. Beresford Pite proposed "The health of the Lecturers and Instructors." The lecturers and instructors, he said, were practically those friends who amply filled up the gaps in their self-education; they went on the old patriarchal system; they were brought up in families; they were lodged and boarded, and were bound hand and foot by articles of indentures having clauses with hidden meaning which were never explained to the luckless signer, who, amid drawing-boards and specifications, was left to complete his education in something after the style of a fowl picking up grains in a farmyard. The speaker referred to Mr. Leonard Stokes as the originator of the idea of what was now the educational system of the Association. They had never anticipated the outside support which they now had in the shape of an

EXCELLENT BODY OF INSTRUCTORS.

For many years it was the rule of the Association to provide the examinees for the Institute examinations, but no examiners. To-day, however, the position was altered, and he hoped that the day was not far off when the Association would be fully represented on the Examining Board of the Institute. Why, a sight of Mr. Farrow sent a nervous thrill through the student when he marvelled what a large number of now flourishing architects had passed through his fatherly hands! What the Profession owed to him could not be lightly estimated. And now they passed to those charming men, who put them up to the necessary tricks in architectural practice. They had the quantity surveyor to teach them how to cook! Were they accustomed to eat their food raw? Did they think clients digested their accounts raw? The quantity surveyor was a cook—the architect supplied the material and the quantity surveyor cooked the

food. He was a most estimable cook, who instructed architects in the wiles and devices of the craft without any intention of making them quantity surveyors themselves. And as to the other instructors, who were untrammelled by the awful bogie of the examinations: personally, he had not enjoyed his studies until the examinations were all over, but now every fact he acquired with regard to practice and design gave an added joy to existence. One very necessary class which seemed to have been altogether omitted from their educational system was suggested to him the other day by a cynical friend. A man might have his head chock full of technical fact, and his fingers oozing with technical skill, said the friend, and yet fail to obtain any success in life. The thing that succeeds in life is cheek, and therefore was not the establishment of

PROFESSORSHIP OF PURE CHEEK

at all the Universities and technical schools of the country very desirable? He ventured to suggest that they, as architects, might fill up a few chairs. He coupled with the toast the name of Prof. F. E. Hulme.—The toast having been honoured, it was acknowledged by Mr. Hulme, who, in the course of his speech, referred to the Royal Palace at Kew, and pleaded that it should not be allowed to degenerate into a museum. The building was one of great interest, and of no small architectural value, and he hoped it would not be filled with objects which, however interesting, would be out of place there. The speaker referred to the great kindness shown him by students at the A. A., and on behalf of all the teachers and instructors he heartily returned thanks.—Mr. F. R. Farrow also acknowledged the toast. He was sure the Architectural Association would live as long as the Profession lasted. The society was founded on principles which must inevitably bring increasing success to the schools. Referring to the proposed new premises, he hoped the building would be of sound-proof construction, so that the lecturers would not be disturbed by what was going on in adjoining rooms.—Mr. A. H. Hart proposed "The health of the visitors," mentioning that he had received letters apologising for non-attendance from Professor Aitchison, Sir Wyke Bayliss, and Mr. Soanes, who had lately been returned to Parliament for South Norfolk. He coupled the name of Mr. Hare and Mr. Locke with the toast.—Mr. Hare, responding, said he came forward as a culprit. Sixteen or seventeen years ago he was a member of the Association, but he had allowed his membership to lapse. He had, however, followed the reports of the meetings with considerable interest. At the time he was a member the Association was very different from what it is now. It did not present the same advantages; in fact, there was

VERY LITTLE ORGANISATION

of any kind. The lectures were few, there was no regular curriculum, and, generally, there were not the same inducements then as now for a young man to become a member. He thanked the Association for its hospitality.—Mr. Locke also felicitously acknowledged the toast, referring to the cordial relations which had always existed between the Association and himself.—The next toast, "The Committee and Officers"—was proposed by Mr. Alfred Conder, who mentioned the names of Mr. Goldsmith and Mr. Hooper as officers who were retiring after three years of faithful service. He associated the name of Mr. Hooper with the toast.—Mr. Hooper, in replying, said he thought they might claim to leave the Association in as good a position, at any rate, as that in which they had found it. They came upon the Association as budding architects, and it was a satisfaction to them to know that the flower of the Association would take their places. Although retiring, they would do their best in an unofficial capacity to further the interests which everyone had so much at heart.—Mr. Carvill also acknowledged the toast, remarking that the secretaries had not a very easy time of it, but their duties were considerably lessened by the cordial

manner in which they were received and assisted by every branch of the Association.—Mr. Banister F. Fletcher proposed the next toast, "The President-elect,—Mr. Fellowes-Prynnne." There was no doubt that this was the most important toast of the evening—as every toast was—because it was a toast which they had to look forward to during the coming year. The retiring officers were more or less done with; they had got rid of them, and were now looking forward to another year. In Mr. Fellowes-Prynnne they had a president-elect who was in all respects admirable. Mr. Fellowes-Prynnne had been a member of the Association for many years. He had visited the classes, and had taken considerable

INTEREST IN ALL THE WORK

of the Association. In all these points the speaker thought Mr. Fellowes-Prynnne would appeal to them as the one man to be elected as their president. This, of course, was the case with every president as the years came round, but it was even more so in this case than in others. They believed Mr. Prynnne was the man who would guide the Association with success and honour. He did not think he need say more; Mr. Fellowes-Prynnne, of course, in the coming year would speak for himself. They would hear his voice on every occasion, and as he ranked next, as a speaker, to Mr. Pite, whom they regarded as their orator, he did not think he could enhance his value by any further laudation. He was a good fellow, was Prynnne, and if there was one thing more than another the Association desired it was a man who could take the chair and add some interesting and useful and sometimes blythesome words to the debates. The toast was musically honoured, and in replying Mr. Fellowes-Prynnne said he felt very fully the responsibility of his position, following as he was in the wake of very able men. Looking down the list he saw that the names of the past presidents included those of his genial friend Mountford, who was elected twice as president, their most worthy friend and admirable chairman, Mr. Caroe; their orator, Mr. Beresford Pite, and last but not least their most truly business-like friend, Mr. Hampden Pratt. One felt they had in these gentlemen what they would like combined in one president. Amongst themselves, they must feel as architects that the one great thing needed was a feeling of *esprit de corps*, which would perhaps tend more than anything else to success. They wanted the helping hand of those who were acknowledged to be the leaders of their Art, extending to the younger men; they wanted, in fact, a thorough good fellowship amongst themselves. Artists were always students. They wanted to feel that the studentship did not stop with the studentship of the Association. Concluding, the speaker fluently pleaded for a wider brotherhood in their ranks.—The speeches were interspersed with songs capitably sung by members of the Association, Mr. Constanduros, Mr. Carvill, Mr. Clapham, Mr. Wilson, and Mr. Leonard Butler providing the musical fare.

A COMMODIOUS new school was opened a few days ago at Gilvach, Bargoed. The architects were Messrs. James and Morgan, Cardiff; and the contractor Mr. T. Williams, Bargoed.

COLONEL HEPPEL has held an inquiry at Buxton re application from the Urban District Council for sanction to borrow £1020 for works of sewerage, and £500 for the purpose of contribution towards the cost of rebuilding Otter Hole Bridge.

THE will has been proved of Mr. James O'Byrne, architect, of Birkdale. He designed the Roman Catholic ecclesiastical seminary at Upholland, near Wigan, and the institution will substantially benefit by his will. The personal estate represents over £100,000, and, after providing for relatives, and leaving £1000 to the heads of the Capuchin monks in England, the residue goes to the Roman Catholic Bishop of Liverpool, to be used at his discretion. In addition he leaves to Upholland College his valuable collection of pictures, coins, books, &c., valued at £20,000. The numismatic collection is especially rich in Papal coins and metals.

FOUNDATIONS*

AS APPLIED TO LONDON BUILDINGS
AND RIVERSIDE FOUNDATIONS.

BY A. T. WALMSLEY.

(Continued from page 291.)

IN the Hennebique system of concrete construction, in addition to the use of iron bars or rods to resist tensile stress, a stirrup is inserted at intervals, with the object of holding up the tension members. These stirrups are placed nearer together at the ends of a beam than in the centre, and the system is designed, not only for floors, but for spreading the weight of a superstructure over an extended foundation on soft ground. The calculated strength is the resistance of the iron added to the resistance of the concrete. In the execution of a contract for demolishing an old building in Maiden Lane, London, and building a new one, three stories below ground and ten (subsequently reduced to seven) above, where the site adjoined a court 3ft. wide, upon the opposite side of which was a four-story warehouse, the contract arrangements did not permit of the removal of the soil of the court and the underpinning of the wall to the warehouse; so the ground had to be kept up with the superincumbent weights all round. The contractors timbered with 2in. polings, aided by 9in. and 12in. timbers, both for struts and waleings. This, however, proved quite inadequate at a depth of 30ft. to 42ft., the latter being the depth of the bottom of the trenches. The weight caused the 12in. logs to bend as much as 2in. in the distance of 5ft., at which the cross-struts were spaced. As a consequence, the houses all round, and particularly the warehouse across the court, began to

INDICATE SIGNS OF SETTLEMENT.

The thickness of the retaining wall was increased, and inverts introduced, and struts placed. Difficulties as to the projection of the area into the street prevented the contractors carrying the excavation to the full extent shown upon the plan when the excavation was commenced; consequently, at a later period, when the building appeared above ground, the front planking and timbers had to be taken out, about one-sixth more earth excavated along the frontage, and the ground re-timbered. When this process had reached about 30ft. out of the 42ft. an accident occurred. This timbering gave way at midnight and let into the basement of the building the whole of the earth above, due (as the contractor believes) to some soakage going on in the blue clay and causing it to spew out at the base. The gas and water mains in the narrow street became broken and the sewer injured. The site appeared to be smothered in liquid mud 30ft. deep in the trench. Probably, if sheet planks not less than 3in. thick had been driven close together, joint to joint, anxiety might have been relieved by the use of additional struts. The employment of 2in. poling boards—which the author understands to mean boards 2in. thick inserted behind the waleings at slight distances apart—is only effective where the ground is self-supporting, or nearly so. In ground of a loose kind, close sheeting in all such excavations is absolutely necessary. In the construction of

THE CENTRAL LONDON RAILWAY

the clay has been reached at a depth of 29ft. 6in. below the surface at the Bank Station adjoining the Royal Exchange, at 20ft. at Chancery Lane, and 21ft. 3in. at Davies Street, Oxford Street; the excavation in the shafts indicating 12ft. of made ground over 18in. of loam and 16ft. of gravel at the Bank Station, 6ft. of made ground over 14ft. of gravel at Chancery Lane, and 12ft. 6in. of made ground over 8ft. 10in. of hard mud in Oxford Street. While at some places the ballast has been found almost immediately below the surface, there are other places where the solid stratum of gravel underlies marshy ground to a depth of 15ft. or more. In underpinning an existing structure when building an adjoining structure,

the foundations for which are required to be at a greater depth than the existing building, the work should be set out so as to be executed in sections of about 5ft. to 10ft. in length, one length being completed before the adjacent length is commenced, and each succeeding section inserted, so that one or more undisturbed section or space of 5ft. to 10ft. is allowed to exist between the section in course of progress and the last finished section. The wall which is underpinned will thus stand on piers 5ft. to 10ft. long, with undisturbed ground intervening. When the stratum of earth on which the piers are built does not prove strong enough to sustain the load upon the piers—an occurrence which cannot be ascertained until excavations are made—the intervening bays should be excavated and the foundations made continuous; but in this case

THE PROCESS OF NEEDLING UP

is indispensable. Care must be taken in fixing the needles to leave room to excavate and to fill in between needles before drawing them; also to employ a proper use of raking and shoring pieces and filling in of window openings as may be essential to obviate danger to the structure, and take care to build up the section with the quality of brickwork suitable for foundations. In underpinning work, brickwork is usually preferred to concrete, because it is easier to ensure tight packing under the old work. Concrete has, however, been successfully used to underpin buildings when carried up to within about 1ft. or 18in. of the old work, and then allowed to set for at least a couple of days before ramming in the remainder with iron rammers, the concrete so used being in a semi-dry condition, and care being taken not only to board up the face and wedge the boards tight against the face of the plastic concrete, but to hammer the boards well in, so as to ensure uniform support to the concrete until it has set. Having underpinned in narrow sections of brickwork upon a concrete foundation, the next step is to grout up and properly make good to existing work, and allow this to set for, say, seven days before the next section is disturbed.

WHERE CONCRETE WITHOUT BRICKWORK IS ADOPTED

for underpinning the time needed for setting is longer, and as underpinning is usually employed in piers, the employment of brickwork is a more speedy operation. In the case of some residential chambers being built upon the site of Cleveland House, St. James's Square, consisting of eight floors, including basement, to the design of Messrs. Rolfe and Matthews, it became necessary to underpin the old wall of the adjacent building, 20, St. James's Square, under the care of Mr. T. Garratt as architect. The old building, the wall of which had to be underpinned, consists of five floors, including basement, and the strata is dry sand. The whole of the underpinning consisted of picked Fletton bricks in cement, resting upon a good bed, attained at a depth excavated in the sand. No concrete was used under the old wall of this adjacent building. The underpinning was carried down in piers under the existing footings to 12ft. to 13ft. below the basement floors, in places where

STEEL STANCHION FOUNDATIONS

were introduced in the new building to carry the floor girders. The remainder of the wall was underpinned to an average depth of 5ft. 6in. below the basement floor, which is about 11ft. below the road level, or a total depth of about 16ft. 6in. The foundation to the walls of the new building are concrete, and to ensure a straight joint between the old and new building, thin sheets of iron were placed between the brickwork of the old building and the concrete of the new building in the foundation, and dry sand filling between the old and new work above this level, so that the new work can settle quite independently. The old wall of 20, St. James's Square, varies from 18in. to 27in. in thickness, the adjoining new wall of the residential chambers being 22½in. at the basement floor. The excavations were made so as to build piers in 4ft. to 6ft. lengths, leaving a similar length between each

pier undisturbed until these piers were set, a minimum of four days for this purpose being required. The intervening space was then cleared, and the underpinning completed to form a longitudinal continuous support. Where cross walls appeared, the underpinning was carried about 2ft. 6in. under the cross wall beyond the longitudinal underpinning. In the improvements recently effected


AT THE LORD WARDEN HOTEL, DOVER,

several interior walls upon the ground floor were removed to form an area facing the main entrance suitable for a lounge. It being decided to carry the stanchions, which had to be inserted to support girders carrying the upper walls upon the lower existing walls, Messrs. Handyside and Co., the contractors, introduced 10in. by 6in. rolled steel joists 6ft. long, as distributing girders, over which a cast-iron bed-plate rested, and between this bed-plate and the foot-plate to the stanchion very flat steel wedges were introduced, tapering from 1½in. to ¼in. in a length of 25in. By this means further deflection was obviated, and subsequent cracks in the existing upper wall avoided.

IN THE BUILDING OF THE NEW CARLTON HOTEL,

Haymarket, the old walls of the Opera House foundations were left intact, except where the contractors found it necessary to cut through them for purpose of the new work. The formation was tested to 36ft. 6in. depth below street level, and found to be loamy sand, suitable for foundations. The new front walls are all solid foundations upon continuous concrete. Portland cement concrete (six to one) 3ft. thick, was placed under the main walls and under the intermediate walls, everywhere of the same thickness except under the 9in. walls, where 2ft. thickness was adopted, and under stanchions, where a base 9ft. square was used, 4ft. in depth. There is not more than 2ft. difference of level in the top of all the concrete, a difference necessary to suit the floors. The width and depth of concrete employed for this building is as follows: For 9in. walls, 2ft. 6in. wide, 2ft. thick; 14in. walls, 3ft. 4in. wide, 3ft. thick; 18in. walls, 4ft. wide, 3ft. thick; 1ft. 10½in. walls, 4ft. wide, 3ft. thick; 2ft. 3in. walls, 5ft. 6in. wide, 3ft. thick; 2ft. 7½in. walls, 6ft. 6in. wide, 3ft. thick. The solid columns, 8½in. in diameter (hammered steel ram) are carried on a cast-iron base plate 2ft. 8in. by 18in., seating on five rolled steel joists, 18in. by 7in., embedded in the concrete, each 7ft. long. In some cases four rolled steel joists are used, carrying a solid rolled steel column 7in. diameter. The

STANCHIONS ARE EMBEDDED IN THE BRICKWORK

where walls permit, and carry the wall girders. All brickwork is in cement throughout. For large weight, solid blue brick piers in basement support stanchions. The wall next the Arcade had to be underpinned by piers 18ft. deep. This wall formerly took the roof of the Arcade only, but now supports the side wall of the hotel, and seven floors. Six distributing rolled joists, 10in. by 4½in., were inserted to carry the weight of the upper wall on top of crown resting on brickwork. A stanchion was built into each pier, leaving about 2ft. of the face-work next the Arcade intact. New arches were inserted, using the old arches as centres. The old arches were then cut out and the new piers carry the Arcade roof and hotel wall at this side. The stanchions, with the surrounding brickwork, carry the springing of the arches. Two 12in. by 3in. channel sections, with two 16in. by ½in. plates, form the stanchion, 13in. by 16in. over all. Four rolled joists carry a 16in. square stanchion, 20ft. by 2½in. long, with steel  rivetted to the stanchion at the base, and an 11in. column above this, 22ft. 5½in. long, making altogether 42ft. 8in. in height. The stanchions and columns are employed for interior walls only. The 7in. columns, 24ft. 3in. over all, vertically have a base plate 2ft. by 18in., and the construction erected by Messrs. R. Moreland and Son is an interesting example of the use of solid steel stanchions and of distributing girders in foundations arranged with the aid

* A paper read before the Architectural Association on May 20, 1898.

of a cast-iron base plate to give a pressure not exceeding $1\frac{1}{2}$ tons per square foot. Mr. H. L. Florence is the architect.

AT GREAT YARMOUTH,

within two years of the building for the Town Hall being completed, it was found that the western portion, near the river, was settling considerably, and levels were taken monthly, with the result that Mr. Cockrill, the borough surveyor, found these settlements were continuing, especially after heavy rains, or very high or very low tides. The late Sir J. Bazalgette was called in, and he recommended underpinning and building walls under present foundations with concrete blocks. Borings were made showing 6ft. of made ground and 18ft. to 20ft. of soft ooze, below which was gravel. Mr. Cockrill carried on the works under Sir Joseph Bazalgette's instructions. The method of procedure was to sink two cylinders entirely without pumping, a grab being employed to remove the soil inside cylinders, and divers to level and sink them. These were sunk to a depth of 40ft. A trench was opened from the cylinder out to the north-west corner of the building, but immediately on commencing to pump, a settlement was caused in the building which so frightened the municipal authorities that they stopped the works, and, of course, as the water rose in the soil, this finished all chance of doing anything further with it. Mr. Cockrill, however, is very strongly of opinion that if they had allowed the matter to have gone on he could have underpinned the corner in forty-eight hours, and when one corner was done it would have been a comparatively easy job to have continued. Sir Benjamin Baker next came on the scene, and with Sir Joseph Bazalgette recommended widening the present foundations by using the concrete blocks made for underpinning. The committee, however, resolved to pull the west part of the building down, but subsequently, upon the advice of Mr. F. E. Duckham, screw piles were introduced. Mr. Duckham's plans consisted of putting rows of cast-iron screw piles at intervals of 9ft. inside and outside the main walls, each about 23ft. long, screwed approximately 3ft. into the gravel banks. On the heads of these piles, longitudinally and parallel with the wall, were placed girders about 15in. deep, and across them, suspended by strong screw bolts, steel joists were placed under the concrete foundations, and then screwed up tight to the concrete, the whole being surrounded with concrete. No settlement has since occurred. The subsoil consisted of a gravel bank, underlying 16ft. to 18ft. ooze and 5ft. or 6ft. of made ground into which the trenches for the concrete foundations were cut. The removal of the water from these trenches

TENDED TO JEOPARDISE THE BUILDING.

The piles employed were 2ft. 6in. and 3ft. diameter, filled with concrete so that in the event of the cast-iron becoming injuriously affected by the soil of the district the internal concrete columns would sustain the superimposed mass. In the construction of the Liverpool Overhead Railway, wrought-iron girders placed 22ft. centre to centre, at a normal span of 50ft. and at a height of 16ft. above the roadway, are supported by columns built of two steel channels and two plates grouted at their base into cast-iron shoes, which are anchored to concrete foundations by bolts, the concrete footings being arranged so as to distribute a pressure of one ton to the square foot over the surface of the made ground on which they stand. The safe bearing power of various kinds of ground may approximately be stated as follows: Made ground, when dry, as firm earth will sustain, from 2500lb. to 3500lb. per square foot, or, say, from 1 ton to $1\frac{1}{2}$ ton per square foot; but if the subsoil be of an alluvial character, or quicksand, it will be prudent to allow only $\frac{1}{2}$ ton to $\frac{3}{4}$ ton per square foot, and the same for soft clay near the surface; whereas with moist clay we can allow from 1 ton to $1\frac{1}{2}$ ton per square foot; compact clay, nearly dry, from 2 tons to $2\frac{1}{2}$ tons per square foot; dry, compact clay, of considerable thickness, from 3 tons to 5 tons per square foot; loose sand,

from 1 ton to $1\frac{1}{2}$ ton per square foot; compact sand, from 2 tons to 3 tons per square foot; compact sand, prevented from spreading, from 5 tons to $7\frac{1}{2}$ tons per square foot; ordinary gravel and sand, from 2 tons to 3 tons per square foot; but, if the same be compact, dry, and prevented from spreading, from 4 tons to 6 tons; while ordinary rock would safely carry 9 tons per square foot. In the case of the Tower Bridge, it was thought expedient to limit

THE PRESSURE ON THE LONDON CLAY

upon which the piers rest to 4 tons per square foot. When the bridge is loaded to its utmost capacity, it is calculated that the granite bed under the columns of the towers sustains 16 tons per square foot, and the Staffordshire blue brickwork immediately beneath the granite 10 tons per square foot. At the Imperial Institute, designed by Mr. T. E. Colclutt, the pressure produced by the foundations upon the blue clay is estimated to be $2\frac{1}{2}$ tons per square foot. The main walls are continuous, but the wing walls are carried by girders attached, in some cases, to stanchions built into brick piers, so as to obtain easy communication in the basement area for pipes and storage connected with exhibition purposes. The stanchions, where introduced, are 14ft. 5 $\frac{1}{2}$ in. over all, and stand on concrete foundation. The outside walls are carried down 14ft. to 19ft. below street level. Clay, when dry, and retained or excavated to a flat angle, is a safe foundation; but mixtures of sand and clay are bad, the sand admitting water and the clay retaining it. In such a soil, 2 tons per square foot of foundation is sufficient to assume. Landslips in clay occur when a clay bank is left insufficiently protected or at too steep a surface. In many parts of the Midlands, where it is the immediate subsoil, structures built thereon are apt to slip, and end walls of houses to crack owing to the shrinkage of clay due to excessive dryness. A landslip occurred on the South London line of the London, Brighton, and South Coast Railway, upon the south side of the line

AT DENMARK HILL STATION,

where the railway passes in a cutting, having an average depth of 25ft. along the side of the hill rising to the southward, and consisting of London clay. The slopes of the cutting were laid as flat as the limits of the land acquired would allow, and, in order not to encroach on the public road called Champion Park, a surcharged retaining wall was employed to uphold the slopes. For a period of about twelve years after the railway had been opened for traffic the retaining wall appeared quite sufficient to withstand the pressure of the earth behind, although some slight slips occurred on the surface of the slope; these being dealt with in

the ordinary way—by taking out the slips and filling up the space with chalk. Later on, owing to a movement in the wall itself, more vigorous measures were adopted, and heavy concrete buttresses were put in below the foundations of the wall, and brought up to the level of the platform. This remedy answered for a time, but the mischief was still going on, and during the winter of 1881 made itself apparent by a further movement of the wall, a sinking of the roadway in Champion Park, with a corresponding rising of the permanent way, which was lifted 2ft. It was, therefore, decided to put in another wall at the back of the existing one, sufficiently deep and heavy to resist the increasing pressure of the moving clay. This was done by the construction of a wall 12ft. in thickness in Portland cement concrete, the foundations being carried down to a depth of 18ft. below rail level into the solid ground, undisturbed by the slip. In addition to this wall, which was built for a length of 400ft., transverse counterforts, 5ft. in thickness, were put in about 13ft. apart, extending from the back of the wall up the slope to the road above, a distance varying from 20ft. to 50ft. The cause of the slip was probably

OWING TO THE ACCUMULATION OF WATER

in the ground forming the slope behind the wall. The presence of the water arose from two causes. (1) The flatness of the public road, and the non-provision of any surface drains to carry off the water for almost the whole length of the station, except at its extreme end. (2) The existence of a sewer passing along Champion Park near the top of the railway slope, which probably was in a leaky condition. The water consequently found its way through some crevices or sandy veins in the clay, thereby increasing the pressure against the wall to such an extent as to cause a forward movement of the clay, which the wall was unable to withstand. The remaining wall at the west end of the station also showed signs of moving, and this was strengthened by building raking-buttresses in cement brickwork, with intervening arches against the face of it with concrete foundations carried down to a depth of 10ft. below the footings of the old wall. Three concrete counterforts, each 12ft. by 10ft., and 28ft. high, carried down 10ft. below rail, were also introduced at the extreme west end of this retaining wall. About 10,000 cubic yards of concrete were put in. The works enumerated above were commenced in December, 1881, and completed by August, 1883. The works as carried out have proved effectual in arresting the movement of the earth, and no further trouble has been experienced at this place. The following table shows the angle at which different materials may safely be allowed to have sloping banks:—

TABLE OF ANGLE WITH HORIZON.

Earth.	Rankine.	Wray, Unwin.	Molesworth.	Natural Slopes.
Dry Sand and Mixed Earth	37° to 21°	—	—	1'33 to 1
Sand, Fine and Dry	—	37° to 31°	—	2'63 to 1
" " Wet	—	26°	—	—
" " Very Wet	—	32°	—	—
Dry Sand	—	—	38°	—
Sand	—	—	22°	—
Shingle and Gravel	48° to 35°	—	—	From
Loose Shingle	—	39°	—	0'9 to 1
Shingle	—	—	39°	1'43 to 1
Gravel	—	—	40°	—
Clean Gravel	—	48°	—	—
Gravel with Sand	—	26°	—	—
Damp Clay and Drained	45°	45°	45°	1 to 1
Wet Clay	17° to 14°	16°	16°	3'23 to 1, and
Dry Clay	—	29°	—	4 to 1
Peat	45° to 14°	45° to 14°	—	1 to 1 and 4 to 1
Vegetable Earth, Dry	—	29°	28°	—
" " Moist	—	45° to 49°	—	—
" " Very Wet	—	17°	—	—
" " Punned	—	66° to 74°	—	—
Compact Earth	—	—	50°	—
Rubble	—	—	45°	—

The Farringdon Street bridge of the Holborn Viaduct is remarkable as having a platform constructed of cast-iron arches and floor plates, the only wrought-iron employed being for the connecting bolts. The old bed of the Fleet River crossed the site where the viaduct is carried across the valley, and the bed of the existing Fleet sewer was about 22ft. or 23ft. below the old level of Farringdon Street at the point where the principal arch of the viaduct spans that street, upon the skew. This bed is clay. The scare created as to the fracture of columns or masonry in the piers was due entirely to bad face-joints in the bedding of the granite work. There was evidence of stability in the foundations, as not the slightest movement had taken place. The excavations for the foundations were carried 7ft. and over, below the old bed of the river into the solid blue clay and concrete. The foundations of the Great Northern Railway Company's goods station in the Farringdon Road are carried down to a depth of 16ft. below the rail level. The piers are of Staffordshire blue bricks set in cement, and are built upon footings of concrete that rest upon the London clay. The Great Northern Railway Company constructed an additional tunnel under some large warehouses in the Brewery Road, Islington, without the removal of any of the heavy stock contained in the warehouses or compensation for stoppage and loss of trade to the owners. The tunnel was built in 6ft. lengths, and as each length was tunnelled out it was arched in at once, and neat cement worked in by hydraulic pressure between the arch and the ground above, each length being completely finished before a fresh one was started. Messrs. Holland and Hannen, of Bloomsbury, London, constructed at the Surrey Commercial Dock some new warehouses in the South Dock

ON CONCRETE PIERS

varying in depth from 22ft. to 29ft. The borings showed the strata in various positions on the site to be in most cases made ground, blue clay, peat, silty clay, sand, and gravel. There were altogether some 250 pier holes to be excavated 4ft. 6in. square, and averaging about 20ft. below the surface of water in the dock immediately adjoining. It is obvious that to have kept each pier hole separately pumped out during operations would have proved an endless task. A large sump hole was therefore formed in the centre of the site, and by these means the water strata was tapped, and by constant pumping the pier holes were kept sufficiently dry to work in. Some considerable difficulty was experienced with the pumping machinery at the commencement, as ordinary pumps were useless in consequence of the large amount of sand extracted with the water. Centrifugal pumps were tried, but without success, and eventually a Murray's endless chain pump was erected which worked satisfactorily until the pier holes were completed.

(To be continued.)

The female sanitary inspector of the St. Pancras Vestry having, in pursuance of her duties, been refused admission to the North London Collegiate and Camden School for Girls, in Sandall Road, counsel's opinion (that of Mr. Herbert F. Manisty) was taken as to the powers of inspection possessed by the Vestry's officers under the Public Health (London) Act, 1891. Mr. Manisty was of opinion, as reported to the Vestry, that subject to proper notice given, specifying the works the sanitary authority desired to examine, the sanitary authority had power of entry. As it was desirable that their power of entry should be absolute, and not subject to the condition that the Vestry had some ground for believing that nuisance *prima facie* existed, he suggested that the opinion of the High Court should be taken on a special case stated by the parties.—The Public Health Committee recommended that notice as settled by counsel be served, and that in the event of admission being still refused the Vestry's solicitor be instructed to take the necessary steps for obtaining a judicial opinion of the High Court, as advised by counsel.—The recommendation was adopted.

THE WESTMINSTER BUILDING DISASTER.

"CULPABLE NEGLIGENCE OF THE ARCHITECT."

THE inquiry into the Westminster building disaster was resumed on Monday week, when Mr. Pawley, architect of the ill-fated building, recalled, said he had followed the profession for about fifteen years, and had never had fault found with his work prior to this affair. There had never before been a fatal accident on any of his buildings. After evidence as to the weight of the brick pier, witness said he had given orders that the centering was not to be struck. He did not think the omission of the stanchion to which frequent reference had been made would account for the accident. Some of the alterations in the plans were made owing to the desire of the Government that brick partitions should be used instead of those of glass and wood.—Mr. H. H. Collins, district surveyor for the eastern division of the City of London, said his firm conviction was that the cause of the accident was the

UNFORTUNATE WITHDRAWAL OF THE CENTERING

before the concrete had properly consolidated. He had examined some of the concrete which had not fallen, and found it well mixed. He thought it very feasible, the witness said, in continuing his evidence on the following day, that the concrete caved in between the lacing joists as had been described by one of the previous witnesses. The concrete would then fall in large or small pieces, having no centering underneath it, and if it fell through a depth of 22ft. it would probably crash on the ironwork underneath, causing it to act as a lever on the pier and throwing it over. He thought that the ironwork of the roof would have stood in its skeleton form had the pier remained in its position. It was the falling of the pier that caused the iron girder of the roof to go. Had the pier been larger it would not have withstood the falling concrete. The probable spot at which the pier would give way, if it collapsed from its own inherent weakness, was at its base on the first floor. What had been termed "a pier" was in reality a series of piers. The total weight of the brickwork of the series of piers was 27 tons 19cwt. The total weight on the pier at its base at the time of the accident was 45 tons. It would require a force of eight times 61 tons to crush the pier.

BRICKWORK IN CEMENT

required from 60 to 70 tons per foot super. to crush it. His authorities for that statement were Professor Rankin and Professor Unwin. One could put up very large buildings such as they had in America if bolts were used on each floor, and provided there was a base sufficiently large. The addition of a stanchion would have decreased the burden that the pier had to bear, and it would have been wise to have put up a stanchion.—By Mr. Ellis Griffith, M.P. (counsel for the roof contractor): The only fault he found with the building was that the centering was removed too soon. He did not believe the evidence of the witnesses who said that the concrete struck the pier, although they might have imagined that that happened.—Mr. William Eve, of Union Court, Old Broad Street, a Fellow of the Surveyors' Institute, said he had had considerable experience in the construction of buildings. He had examined Abbey Mansions and was of opinion that the load on the brick pier weighed 53½ tons. That he considered to be a safe weight. The fact that the pier was found in large pieces showed that

IT WAS OF GOOD CONSTRUCTION.

He would not like to strike the centering of a concrete roof until after the expiration of fifteen days, and he would prefer to allow a lapse of twenty days for the concrete to solidify. He thought that the premature striking of the centering was the cause of the accident, and the fact that the building fell while the centering was being struck confirmed him in that view. His idea was that the concrete fell on the carriage girder of the seventh

floor, a distance of 11ft., pressing the girder down and prising up the pier. The pier, no doubt, dragged down the girder joists and the brickwork.—By Mr. Ellis Griffith: He did not agree with everything Mr. Collins had said. He had known many buildings to be constructed without plans, but he had not so constructed them himself. It was improper, in his opinion, to fix a girder in a flue without a stanchion being put in. Some of the concrete must have fallen before the pier lurched. Without the stanchion the pier would not have been sufficient to support the building when it was occupied.—Mr. E. A. Gruning, vice-president of the Royal Institute of British Architects, said centering should not be struck until about three weeks after the concrete was laid. He had heard the dates upon which the roof was concreted and the centering struck, and did not think the concrete could have hardened sufficiently to render the striking safe. In his opinion it was the

FALLING OF THE CONCRETE ON THE GIRDERS that caused the pier to collapse. It would have required a very much larger pier to have resisted the falling of the concrete roof.—Mr. Thomas Blashill, F.R.I.B.A., F.S.I., superintending architect of metropolitan buildings and architect to the London County Council, was called at the hearing on Wednesday, and said he attended, by request of the Council, to give expert evidence. He had examined the south block of Abbey Mansions and had heard the evidence. There could be no doubt that the collapse of the interior of the building was due to the fall of a detached pier, whether caused by the fall of concrete or not. With regard to the strength of the pier, he did not doubt that it was built of fairly hard stock bricks set in cement mortar. He made its horizontal area 7ft. at the bottom. On the fifth floor level its horizontal area was diminished to 5ft. It was connected on one side to a wall which ran up the basement story and the ground story, subject to any opening which there might have been in it. He made the weight of the pier itself, together with the weight of the floor and the roof and their girders complete (so far as executed at the time of the accident) round the level of the basement floor, to be 48½ tons. This was rather less than other witnesses had made it, but in this calculation no account had been taken of the 4½in. party wall which was in course of construction, nor of the

STORING OF BUILDING MATERIALS

The first question was the resistance of good stock brickwork in cement. That depended largely on the height of the pier in proportion to its smallest horizontal dimensions. Its total height of 105ft. or thereabouts was entirely out of proportion to its width, but he did not make that great height the basis of calculation. He attached very little importance to the wall with which it was connected on the lower story. The wall was built in mortar while the pier was in cement, and any considerable strain on the pier would break its connection with the wall. A pier of proper construction, stiffened at intervals of about 11ft., might with some qualification be dealt with in separate sections, but in order to justify this the floors must be quite rigid, and the construction of the pier, especially where it was connected with the floors, must be perfect as regarded the strength and the arrangement of its parts. If such a pier should be in any degree out of the upright or badly constructed, or subject to the least pressure, except perpendicularly, it must be very materially weakened, and in this way its great height would render it liable to excessive stress in particular parts. Subject to these observations, he had endeavoured to find out the crushing strain and the safe load of

GOOD STOCK BRICKS AND CEMENT.

On this point there was great variety in the published experiments. The crushing strength of stock brickwork was given at from 18 tons to 30 tons, and even as high as 70 tons per foot super., and the proportion of safe load to crushing load was given by various authorities at from one-fourth to one-twentieth. But he believed it had long been the practice of

architects to adopt a load of from five to six tons per foot super. as a safe load. Professor Unwin, in speaking of some recent experiments made by the Royal Institute of British Architects, said that from four to seven tons was a safe load, and that seven tons was the extreme limit with prudent architects. He thought that recent experiments showed that the safe load would be under the seven tons per foot given by the witnesses, which was as much as one-half or one-third of the pressure which had crushed a full-sized pier in experiments. On each floor the regular brickwork was interrupted by stone templates going over the whole surface of the pier and by girders. The girders ran

THROUGH SIX COURSES OF BRICKWORK.

In no case did the height of any girder coincide with any course of brickwork. No experiments such as had been alluded to in this inquiry had ever been made, so far as he knew, on brickwork of this kind. The strongest arrangement as regarded the big girder would have been to have fixed it within the middle third of the area of the pier. Any departure from that position materially weakened the strength of the pier. This girder was within 6in. on each floor of the west end of the pier, and bore principally upon one corner of it. In this way the pier at each floor was seriously weakened in its construction, and, besides, was seriously overladen. He had no doubt that at the time of the accident the lower half of the pier, at least, was in certain places dangerously overladen, and that this danger was increasing daily. It might have collapsed at any time from that cause, together with the weakness of construction. Upon the occurrence of any appreciable shock it was nearly certain to collapse. It was not necessary, in his opinion, to assume a fall of the concrete from the roof, and, had the disaster not happened at the time when the centering was being removed, a fall of concrete would hardly have been suggested as the cause of the accident. As to the concrete roof, he was told by the engineer and chemist to the London County Council that the cement which they had tested was very good. The material of the furnace clinker or ashes must have varied considerably, as some of the concrete fell in large pieces, and some were weak. He believed no coke-breeze was found in the concrete. He had used coke-breeze very largely, and it was not like this. He would not think it

UNSAFE TO STRIKE THE CENTERING

of coke-breeze concrete at the time the centering of the roof of the collapsed building was struck. They struck centering under coke-breeze floors, 4½ in. in thickness, in a week or ten days, but the centering in this case was struck in less than a week. A flat roof given that time should have carried itself, but if a portion was of very bad quality it might fall. He had very little doubt that, however it might have fallen, it would have caused the collapse of the pier. He thought that if the pier gave way, without the shock of the concrete, at any part of its height, there would be a short period during which it was going downwards through the crushing of the brickwork, and horizontally in the direction of the staircase. Then after a short period the whole building would collapse, as had been described. If the roof concrete gave way he should expect it to break about the middle in the direction of its length, and under conditions, which he described, it would break into two pieces, roughly measuring about 10ft. by 2ft. each, or 20ft. super.—By Mr. Hugo Marshall (for Mr. Pawley): He did not think the upper part of the pier was overloaded. The danger of overloading came somewhere towards the bottom—the second or third floor. He thought that

FIVE TONS PER FOOT SUPER.

was a safe load, but he was quite in the hands of scientific men on the subject. On the first floor the load weighed 5.64 tons. It was there that the danger occurred most. He could not say that all the danger was below the third floor, as there were no ties on the fifth floor. Any kind of shock such as that caused by a scaffold-pole falling end on a girder would

have been likely to cause the collapse. He could not go so far as to say that the falling of the concrete knocked the pier down; he did not know how much fell. If the concrete fell first, then it no doubt caused the collapse. It was true that such a shock might destroy a properly-constructed building. He did not consider seven tons per foot super. a dangerous load for this pier.—Mr. Marshall: Do you agree with the other expert witnesses that even if the pier had been reasonably larger it would have been crushed by the falling concrete?—I have some difficulty in answering. But if that pier had been of sufficient size, and the concrete had been so soft as to fall, I should have considerable hope that the building would stand.—By Mr. Thompson: Assuming that the perpendicular, the ties, and the foundation of the pier were perfect, the fall of concrete might bring it down.—By Mr. Gardiner: Any appreciable weight falling on the building might have caused it to collapse.—By Mr. Kent: Seven tons per foot super. was

THE EXTREME LIMIT

for a prudent architect to adopt for a safe load. The actual load on the pier was 6.9 tons per foot super.—Mr. Gruning, surveyor, recalled, said that in his judgment a safe load to put upon the pier, having regard to its construction and all the details, was seven tons per foot super. There was nothing in the construction of the pier to suggest to his mind that it was the cause of the accident.—The inquiry terminated on Thursday after a hearing of twelve days. The Coroner occupied four hours and a half in summing up the mass of contradictory evidence adduced. He directed the jury that the question they had to decide was which of the two suggested causes the collapse of the building was attributable. One was the premature striking of the centering of the concrete of the roof when it was not properly set, and possibly not properly mixed, and the other that the pier was constructed in a faulty manner. It had been suggested that the materials used in the construction of the pier were

FAULTY AND IMPROPERLY PUT TOGETHER, but in this connection the Coroner directed the jury to entirely disregard the evidence of Collins, the stonemason, as it was wholly unsupported and disproved in many important particulars. The question they had to decide as regards the pier was one of design, and they would have to judge whether Mr. Pawley or anybody else was guilty of mistaken or of

CULPABLE NEGLIGENCE.

The question was purely one of criminal responsibility, that of residual responsibility being for another Court. The Coroner then directed attention to what he considered to be discrepancies in Mr. Pawley's evidence. In conclusion, Mr. Troutbeck trusted that the whole question of the local control of buildings would be reconsidered as a matter touching the public safety, and to prevent the repetition of such a disaster. After a consultation of an hour's duration, the jury returned the following verdict:—"That the deceased met their death through injuries received from the collapse of the south block of Abbey Mansions, the cause of which collapse was owing to faulty design in the construction of the pier, due to

THE CULPABLE NEGLIGENCE OF THE ARCHITECT.

The jury are of opinion that some of the concrete of the roof was carelessly mixed and of inferior quality, but that it was not the initial cause of the collapse. In the opinion of the jury greater powers of public control should be exercised over buildings.—The Coroner: There is only one construction, I fear, to be placed upon your verdict. It is a verdict of manslaughter against Mr. Pawley.—Mr. Marshall then submitted that Mr. Pawley had no duty to the deceased, and that even if he had, and was guilty of a breach of duty, that breach was not the proximate cause of the accident.—The Coroner: That must be argued in another Court. As Mr. Pawley has shown no desire to assist the Court, I will fix his bail at £200 in his own recognizances, and £100 in those of his solicitor,

Professional Items.

BAKEWELL.—The new vestry which has lately been built at the north side of Bakewell Church has been formally opened. The vestry is from designs by Mr. Naylor, architect, of Derby, and the masonry and building was entrusted to Mr. T. Allsop, builder, of Bakewell. The building is of Stanton stone. Externally, the style is after that of the church (Early Gothic), with embattled tops and windows.

BRISTOL.—The Fairfield Road Higher Grade Board School and School of Science will be completed in the autumn. The range of buildings has been erected on a three-cornered site on the sloping side of a hill, the mixed school, science school, and infants' school being grouped in triangle fashion so as to leave a small playground in the centre and larger playgrounds in two of the angles of the land. The external masonry is of pennant laid in erratic courses, and relieved by red brick window and door openings and terra cotta decorations. Owing to the scheme being a costly one, the decorative element was cut to the narrowest limits. The design has been furnished by Mr. W. J. Bernard, and the contractor is Mr. John Perkins, of Redland.

CHICHESTER.—The monument erected at Chichester Cathedral to perpetuate the memory of Bishop Durnford was unveiled last week. The monument is erected under the easternmost arch of the south-east chapel of the nave (St. Clement's Chapel), between the chapel and the south aisle. It consists of an altar tomb of Clunch, having square tracery panels divided by panelled niches of Purbeck marble, containing shields bearing emblems of the Passion. The tomb has a moulded base and slab of Purbeck marbles, and upon the slab rests the recumbent effigy of the late Bishop in Episcopal habit (including robe and mitre), and executed in alabaster, carefully selected and polished. Above this is a beautiful piece of workmanship in the form of a rich canopy of Clunch, consisting of cusped arches and groining, supported at the ends by shafts, in the centre by penchants carved with angels. At each end of the tomb there is a traceried panel partly pierced and having a small niche, with the figure of St. Richard at one end and St. Wilfred at the other. At the corners are figures of the four Evangelists, and the whole canopy is crowned with richly carved cresting and pinnacles. The design was prepared by Messrs. Bodley and Garner, of London, and the execution of the design was entrusted to Messrs. Farmer and Brindley. The Clunch stone used for the canopy is a fine grained stone much in use for monuments and delicate work.

DEVONPORT.—A new south aisle which has been added to St. Stephen's Church, Devonport, was consecrated a few days ago. The aisle, which occupies the site of a demolished house, is quite in keeping with the contour and style of the church, is of Gothic design, will seat about a hundred people, and has cost over £3000. In addition to the aisle itself, there has been built a sacristy and side chapel, provision being made in the sacristy for a side altar; the steps leading up to this are of Devonshire marble, while Italian mosaic has been utilised for the laying of the intermediate places. Messrs. Pethick Bros. were the builders, and their admirable work was executed in exactly one year.

EDINBURGH.—The memorial stone has been laid of the new Craigmillar Park Free Church. The plans have been prepared by Messrs. Sydney Mitchell and Wilson, architects, 13, Young Street. The church is cruciform in shape, and consists of a nave, aisles, transepts, and a semi-octagonal apse. The tower is in the north-west corner, and in it the main entrance is placed. The doorway is arched and richly moulded, and above it is an elaborate panelling in stone. The vestibule between the doorway and the church is spacious. Over it is placed a western gallery, which is

reached by a wide and easy stair. The nave is divided into three bays by circular columns; with moulded capitals, and these carry obliquely-pointed arches. The aisles are used entirely as passages, and contain no seats. The apse is separated from the church by a handsome and lofty stone arch, and it is lighted by three tall and narrow windows with richly traceried heads. The pulpit, which is of wood, is placed at one side of the arch between the church and the apse, and the communion table, reading desk, and font are placed in the apse itself. On the north side of the apse, and opening into both it and the north transept, by means of stone arches, is the organ-chamber. The roof of the apse is treated as a semi-dome, and is lined with wood and decorated with moulded ribs of the same material. The roof of the nave and transepts is open timbered, with the principals treated with considerable elaboration.

ILFORD.—Cardinal Vaughan has laid the foundation-stone of a new Roman Catholic Church, dedicated to SS. Peter and Paul, at Ilford. The site of the church is in the High Road, close to Ilford Parish Church. The new building is designed with nave and side aisles, two chapels, and sanctuary. At the north end there will be a choir gallery and priests' sacristy. The portion now being built includes a sanctuary, nave, and choir gallery. The presbytery south of the church will have accommodation for two priests, and it will be capable of enlargement for three priests. The style of architecture is Perpendicular Gothic. The external dressings will be of Portland stone with Kentish rag facings, and stock bricks relieved with red bricks, and a red tiled roof. The internal dressings will be of Bath stone. The work is being carried out by Messrs. Gregar and Son, of Stratford, the architect being Mr. Curtis, of London Wall, E.C.

KIRKCALDY.—At a meeting of the Directors of the Dysart and District Building Company Limited, Messrs. Swanstonehegge, Kirkcaldy, were appointed architects and surveyors to the Company.

LONDON, W.—The Bishop of London last week opened the new central administrative block of the St. Marylebone Workhouse. The present new block was begun in 1896. The old clock and peal of bells which were taken out of the demolished buildings have been remodelled to suit their new position, and have been placed in an octagonal belfry built in English oak. Both clock and bells were found in good preservation, after being in use nearly 100 years. The general dining hall in the new buildings is capable of seating 1000 inmates at meals. It is a lofty, well-lighted apartment, the walls being faced with glazed bricks relieved by a dark dado and coloured bands, and with its open timber roof and panels decorated in stencilled colour it forms a cheerful room. The tables are so constructed that they can be folded so as to form comfortable backs to the seats when the hall is used for entertainments. Adjoining the dining hall is the general kitchen, which is fitted with the latest and best steam and gas apparatus for cooking for as many as 2000 people at one time. The chapel is seated to hold 550 people. Much attention has been given to lighting, warming, and ventilation. The dining hall is heated with steam coils, and all other rooms are fitted with open fires, while the whole building is lighted throughout by electricity, gas also being provided at certain points. The buildings have been erected from the designs of Mr. A. Saxon Snell by Mr. Charles Wall, whose contract for the work amounted to £48,000. The entire cost has been £50,000.

LOWESTOFT.—The opening of a new children's wing of Lowestoft Hospital took place a few days ago. The building has been designed in character with the existing building, and connected thereto by a covered way or corridor paved with tiles. The large ward is arranged for six cots. The floor is laid with polished maple blocks, the walls finished in Parian cement, the dado being painted, and along the

top there are a series of nursery tiles. There is also a smaller ward for two beds of similar construction. Situated between the two wards is a nurses' duty room. The building has been designed and erected by Mr. W. J. Roberts, architect, London Road, Lowestoft.

MAGHERAGALL.—The consecration of the new chancel of the parish church took place a day or two ago. The edifice occupies the site of an older one, and was built in 1830. Although belonging to so unhappy an architectural period, it can boast a well-proportioned tower, and is most picturesquely situated. Mr. G. L. W. Blount, of Waring Street, Belfast, prepared plans for the addition. The general detail of the new building and furniture is early English in feeling. The following firms executed the work:—Messrs. Telford and Telford, of Dublin, in removing organ from gallery to new position; Messrs. Musgrave, heating; Messrs. Ward and Partners, College Street, Belfast, stained glass and tiling; and Mr. George Jones, Great George's Street, wrought-iron work. The contract was carried out by Mr. Walter Law, builder, Moira.

MORRISTON.—Foundation stones of a new Welsh chapel at Morriston have just been laid. The site is on the corner of Horeb Road and Cwmbath Road, and it is being erected by Messrs. Thomas and Jones from designs by Mr. W. W. Williams, architect. The cost will be about £1600.

OUNDE.—In a competition recently held here for the best design for a new town hall, with space for stage, council chamber, retiring rooms, and the usual offices, nine architects competed. The design sent in under the pseudonym of "Nene" was accepted, the author of which is Mr. J. Boothroyd Corby, architect and surveyor, Stamford.

ROTHERHAM.—The foundation stone has been laid of a new Episcopal church at Banklow, Rotherham. The plans for the structure have been prepared by Mr. E. I. Hubbard, and when completed the church will consist of nave, aisles, chancel, organ chamber, vestry, and bell turret. At present contracts for the nave have only been accepted. The church will be constructed of red bricks with terra cotta dressings, and traceried windows. The nave arcades will be built and temporarily closed with screen walls. The structure is designed to seat 412 persons at present. The floor will be laid with wood blocks, and the church warmed with low pressure hot water. The seating, recently removed from Maltby Church, will be adapted and used. The cost is estimated at £1900. Mr. W. H. Trehern, Parkgate, is the contractor.

SHEFFIELD.—New buildings have been added to the John Street Primitive Methodist Chapel, consisting of an infants' schoolroom with gallery, four other classrooms of good size, and two large assembly rooms. The contract for the work of extension was let to Mr. John Morton, of John Street. The architect was Mr. C. J. Innocent.

SOUTHEND.—The handsome statue of Her Majesty presented to Southend by the Deputy Mayor of the borough has just been unveiled. The statue represents the Queen crowned, seated in her chair of State, supporting in her left hand a sceptre, while the right arm is raised and points in the direction of the sea. The expression of the face is homely and pleasing, and a faithful likeness. The general effect is extremely majestic, and the statue being appropriately placed on an eminence facing the pier, makes it still more striking and commanding. The statue, which was carved out of a block of Carrara marble weighing nineteen tons by the sculptor, Mr. J. M. Swynnerton, is approached by two marble steps, and protected by an iron rail, the whole surrounded by tastefully laid out flower beds. Both the pedestal and throne, which are Gothic in design, have been carried out from the designs of the architect, Mr. Edward Goldie.

DEWSBURY IMPROVEMENTS.

SOME LARGE BUILDING SCHEMES.

SOME important building improvements are about to be carried out in Dewsbury. They include the provision of a new market and an extension of the present one, which in all probability will have a glass and iron roof supported on pillars, and perhaps a frontage of shops. The Corporation has already secured the necessary land, which abuts on Crackenedge Lane (fronting the entrance to the Great Northern Railway Station), on New Bridge Street, and on another thoroughfare leading down past the circus and Cloth Hall Mills to Bradford Road. New Bridge Street, which is not new and has no bridge in or near it, has been widened by the Corporation, who purchased much property for the purpose, and who had laid down electrical cables for the lighting of shops and the street lamps, and paved it with Jarrah wood blocks. At present it is devoid of buildings on the north side, only the ruins of tumble-down structures existing, but these will very soon be replaced by business premises. The most important is

A BANK WITH OFFICES,

the whole from plans by Mr. John Lane Fox, architect, Dewsbury, which is to be erected in Northgate and New Bridge Street, with doors at the junction of the two thoroughfares, the frontage to the first being 36ft., and to the second 67ft. The height of the cornices will be 47ft., and from thence rise lofty roofs with windowed gables. The elevation of the first floor will be of grey polished granite, and that above, ashlar from the Holmfirth quarries, relieved with granite bands. The roofs will be covered with green Westmorland slates, and have a ridge of red tiles. The entrance to the bank will be from the corner, where there is a handsome doorway shown in the plans, and leading to a good-sized vestibule; and that to the bank-room proper. A room for the manager is provided *en suite*, with a strong room, and there are convenient offices on the floor above—in all ten in number. In Northgate, adjoining the new bank, there are

SHOP PREMISES

belonging to the Dewsbury Corporation, and these are to be at least new fronted and otherwise improved, and when the construction and alterations are completed that thoroughfare will exhibit a great improvement on its present appearance. But it is in New Bridge Street the greatest change will be exhibited. From the eastern end of the bank already mentioned, Messrs. Holtom and Fox, of Dewsbury, architects, are about to erect buildings—shops, with offices over—which will extend to Foundry Street. Farther on eastward is the hall of the Dewsbury Temperance Society, a structure which has gained in value by the improvements in street lines as carried out by the Corporation, but which is inconvenient in its approach and internal arrangements: Still further to the east is the intended market site, the best frontage being to New Bridge Street, and the next best to Crackenedge Lane. Messrs. John Kirk and Sons, architects, Dewsbury, have prepared

PLANS FOR AN ARCADE,

which is to extend from the Market Place to New Bridge Street; the work being done for Mr. Knowles, of Gomersal. The elevation to the latter thoroughfare will be the most important, both architecturally and in size. The entrance archway is 14ft. wide by 20ft. in height, and is flanked by good shops, with rooms above, altogether three stories and gables. In the Market Place the entrance will be less in size, being only 9ft. or 10ft. in width and 15ft. high. It is flanked with shops. In the arcade proper the buildings on each side are of two stories, those on the ground floor being shops and the rooms above offices, to which there are separate staircases, the whole forming convenient and accessible premises. At the junction of Foundry Street South with New Bridge Street, Mr. Gutteridge is erecting a shop, with workrooms above, from designs by Messrs. D. and W. Thornton, architects, Dewsbury.

Under Discussion.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.

The Architectural Association of Ireland has elected its officers for the session 1898-9. The list is as follows: president, Mr. J. Howard Pentland, R.H.A.; vice-presidents, Mr. Joseph Holloway and Mr. George Sheridan; committee (9), Messrs. H. Allberry, F. Batchelor, T. Coleman, T. E. Hudman, A. I. McGloughlin, L. O'Callaghan, Cecil Orr, R. C. Orpen, and M. J. Tighe; hon. treasurer and registrar, Mr. F. G. Hicks; hon. librarian, Mr. Joseph Geoghegan; hon. secretaries, Mr. R. M. Butler and Mr. A. W. Moore; hon. auditors, Mr. T. F. Slevin and Mr. J. W. Boucher.

MASTER BUILDERS IN SHEFFIELD.

The annual dinner of the Sheffield Master Builders' Association was held at Berry's Restaurant, Moorhead, a few days ago. Mr. J. Longden (president) was in the chair.—Mr. Biggin, in submitting "The Sheffield Master Builders' Association," spoke of the importance of the building trade, mentioning that it employed more men than any other industry, except agriculture. A million pounds were paid weekly in wages, and another million were spent in materials. The Sheffield Master Builders' Association had doubled its membership during the past year. The dispute with the masons was now settled, and in the rules a clause had been inserted constituting a conciliation board, to consist of six employers and six workmen, to arrange any differences which might arise without resorting to strikes.—Mr. A. Forsdike responded.—Mr. Spink proposed "The Yorkshire Federation." He said that the federation was the outcome of the formation of associations. They were forming a universal federation, which would have a very important bearing in regard to strikes. But first they were forming conciliation boards everywhere to prevent strikes.—Mr. J. Dawson replied.

LIVERPOOL ARCHITECTURAL SOCIETY.

The annual meeting of the Liverpool Architectural Society was held a few days ago. Mr. W. E. Willink presided. The annual report of the committee, read by Professor Simpson, hon. secretary, showed that there were 131 members on the roll of the society compared with 121 last year. The meetings numbered twelve for the season, eight being ordinary and four members' meetings. During the year the society celebrated its fiftieth anniversary. The statement of accounts, read by Mr. Dod, showed a balance in hand of £25 and £42 to the credit of the library fund. The report and financial statement having been adopted, the following officers were re-elected:—President, Mr. W. E. Willink; vice-presidents, Messrs. W. Owen and J. Woolfall; hon. secretaries, Prof. Simpson and Mr. W. A. Thornely; hon. treasurer, Mr. James Dod; hon. librarian, Mr. J. W. Blakey. The following were elected to form the committee:—Fellows: Messrs. C. J. Anderson, H. L. Backwith, J. W. Blakey, T. E. Eccles, H. Hartley, W. Owen, and J. Woolfall. Associates: Messrs. F. E. P. Edwards and E. P. Hinde. Subsequently an address was delivered by the president dealing with the work of the past session.

A new organ has been erected by Messrs. Hele and Co., of Plymouth, at Strete Church, Dartmouth.

Enquiry Department.

INSTITUTE EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you please inform me of suitable books on the following subjects, required in the Preliminary Examination, R.I.B.A.:—Plane Geometry, Geography of Europe, History of United Kingdom, Elementary Mechanics, Elementary Physics, English Grammar?—Yours faithfully,

STUDENT.

We understand that the Preliminary Examination at the R.I.B.A. is simply intended as a test of general education. We therefore have no special knowledge of the text books suitable to such an examination, general education being beyond our province. With regard to plane geometry, we presume you do not refer to theoretical treatises such as that by Euclid, but to what is known as Practical Plane Geometry. We rather deprecate the use of all such books—which give rule-of-thumb methods without giving the proofs and the reason why—as tending to develop a parrot-like unreasoning knowledge and no real education; unless the proof of each problem is worked out theoretically by the student as he goes on. With reference to the History, we think that "Green's History of the English People" is particularly helpful to the architect, as it concerns itself more with the life of the people, and helps us to understand the conditions under which our old buildings were produced. For the rest, "Longman's Geography," by G. G. Chisholm; "Statics for Beginners," by Greaves (Macmillan); "Practical Physics," by Glazebrook and Stuart (Longmans, Green and Co.), might be of use to you.

A new Methodist school and class-rooms have been erected at Diss.

A new organ in Holy Trinity Church, Scarborough, has just been dedicated.

THERE are few of the present generation who will remember that Mr. Gladstone was at one time a collector of works of Art. His success in this walk of life was not by any means as marked as in others, and when the result of many years' buying was displayed at Christie's in June, 1875, it was notable more for quantity than for quality. It completely filled the auction rooms, and not only were the walls hung with his pictures, but cases on the tables were filled with ceramics, bronzes, metal work, ivories, and glass. Wedgwood, Worcester, and Chelsea china seems to have principally attracted him. Even the owner's fame could not ensure a monetary success. There were 384 lots of what we now term "bric-à-brac," and these fetched only the sum of £4700, or not more than £12 a lot, the highest price being realised by a Louis XV. clock, which sold for £472. The pictures were ninety-four in number. Few of them were important, and most of them had been a good deal restored, and they averaged only some £30 apiece. It may be noted that Mr. Gladstone was an early admirer of Mr. Leader, R.A.; a "Welsh Churchyard" by him sold for £178. But the highest price realised in the sale was for a picture by Mr. Dyce—a lady with a coronet of jasmine, which sold for 400 guineas. Probably the direction in which Mr. Gladstone was most successful was in his Wedgwood purchases, the Greek forms upon which may very well have appealed to the archaeological bent of his tastes.

KEYSTONES.

THE Morecambe District Council has approved plans and details of a sewerage scheme for the district. The cost estimated is £60,000.

A STAINED-GLASS window, executed by J. and W. Guthrie and Andrew Wells, Limited, of London and Glasgow, has been erected in Larne and Inver Parish Church.

THE new Morley Hall and Gymnasium, in George Street, Hanover Square, W., is a fine and well-lighted one, with two side galleries, and is capable of seating 500 people. The gymnasium is below the hall.

THE Established Church is to build a manse at Cupar Fife. At a meeting of the Building Committee held recently a number of plans were submitted, and the design adopted is one of those sent in by Mr. David Storrar, architect.

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FIVE BELLS rehung at Holcombe Rogus (Devon) and a sixth bell in a new cage have recently been dedicated.

PLANS for proposed alterations to premises in the Old Market Place, Cleckheaton, have been submitted to the authorities at Leeds.

AN engineering feat of considerable importance is at present in course of accomplishment in the Yukon district, in the construction of the White Pass and Yukon Railway. The making of the White Pass and Yukon Railway will curtail by a number of weeks the present arduous method of reaching Klondike.

THE monument to Mr. Gladstone which it is intended to set up at Athens was, of course, projected long before his death. The site ought to be in the Zappeion Gardens, near the Temple of Zeus, and looking out on the blue gulf and the distant peaks of Ægina. There already stands Falguière's marble memorial of Byron.

WE understand that since they reported

upon the results of their search for a suitable site for another lunatic asylum for the West Riding, the Committee appointed by the West Riding County Council have visited several estates and pushed on vigorously with their work of inquiry. Mr. Wilfrid Tempest has again renewed his offer of Ackworth Grange, and the Committee have also in view the estate of Fixby Hall; Coley Hall, near Lightcliffe; Crow Nest, the property of the Mayor of Brighouse; Storthes Hall, near Kirkburton; and a site near to Penistone.

THE Cock at Sutton is following the way of most of the historic inns of London and the suburbs, and in a few days its place will know it no more. It is perhaps the quaintest feature of Sutton High Street, and it has been familiar to successive generations from the time when stage-coaches rattled their human loads along the old road to Brighton, down to the present time when cyclists whizz by in battalions. But the days of its glory are past. A huge

new building close by has superseded it, and in a short time shops and business premises will occupy the site of the well-known hostelry and its extensive gardens.

THE Caerphilly Urban District Council has applied for power to borrow £36,000, for the drainage of Caerphilly, Llanbradach, Aber, and Senghenydd. Mr. W. O. Harpur, surveyor to the council, has prepared the plans, sections, &c., and at the Local Government Board inquiry recently he stated that the district proposed to be drained under this scheme was about 17,000 acres, and the scheme was in two sections, viz., the Rhymney Valley and the Aber Valley. Future requirements were looked to in the arrangement of the scheme. Both mains would fall into a farm called Gwain-y-Bara, in the hamlet of Van, about a mile from Rudry. This farm had been purchased under a Provisional Order, and the sewage disposal scheme adopted was the intermittent and broad irrigation system.

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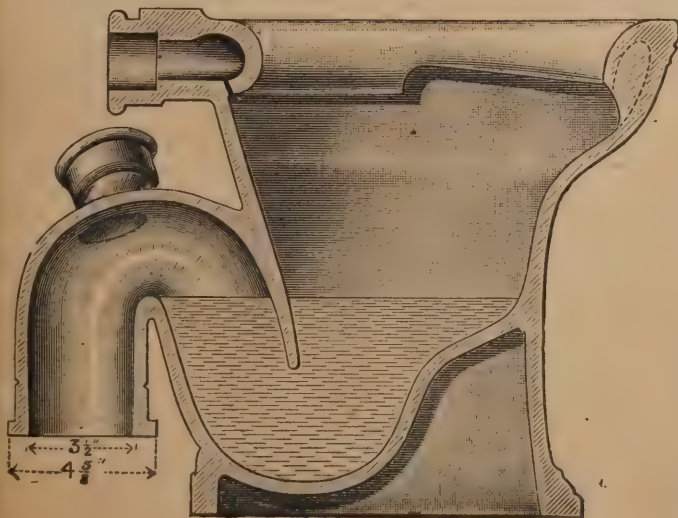
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A NEW Wesleyan Sunday Schoolroom has just been opened at Freckleton.

THE new Orange Hall at Drumbeg was formally opened a few days ago.

THE ceremony of laying the foundation-stone of a new church building took place in Lurgan recently.

A FREE exhibition of pictures was opened recently by Earl Beauchamp, at the Bermondsey Settlement, S.E. The exhibition is to remain open until June 4th.

UNDER the auspices of the Mansfield Corporation, Messrs. Wilson, of Leeds, are holding an exhibition of gas cooking stoves and other gas appliances in the Mansfield Town Hall.

MEMORIAL stones of a new Wesleyan Chapel at Blackwood have been laid within the past few days. The architects of the building are Messrs. Rosser and Roberts, of Abercarn.

A SCHEME is on foot for building a new church at Ravensthorpe, in the diocese of Wakefield. The cost will be upwards of £10,000.

AN elementary school is about to be erected at Askham Richard, near York. Plans have been prepared by Messrs. Penty and Penty, of York.

THE committee intrusted with the erection of the recumbent figure of Dean Vaughan, which is to be placed in Llandaff Cathedral, have issued an appeal for £300, in addition to the £500 already subscribed. When this is provided the work will be placed in the hands of Mr. Goscombe John.

A POLL of the ratepayers of Sheffield has been taken with a view to ascertaining whether they are in favour of the Corporation purchasing the undertaking of the Sheffield Electric Light and Power Company. There voted for the Corporation completing the purchase, 28,130; against, 1965.

THE ceremony of dedicating a new organ for the use of the Liskeard Bible Christians took place in the Bible Christian Chapel. The organ was opened by Mr. W. Fielden, A.T.C.L., in the afternoon, after which there was a public tea, followed by a sacred concert, the choir being assisted by singers and musicians from the town and neighbourhood.

AN American investigator, Professor Rufus B. Richardson, has discovered at Corinth a marble block about 3½ft. long, with an inscription mutilated at both ends. The inscription seems to have been "Synagogue of the Hebrews," in Greek, and the stone in all probability came from the very synagogue in which St. Paul reasoned every Sabbath, and persuaded the Jews and the Greeks.

ONE of the most ancient and interesting of English village churches is the Parish Church of Corhampton, Hants. It is built on an artificial hillock, and the churchyard is perched up on the other side of the road. The site may have been originally one for heathen worship. Some people think that it may be the actual work of St. Wilfred of York. The church is to be restored, and it is much to be hoped that it will not be injured.

COLONEL W. R. SLACKE, R.E., has held an inquiry on behalf of the Local Government Board at the Guildhall, Nottingham, into the application of the City Council for sanction to borrow £51,500 for works of sewerage, £3940 for purposes of public baths, £3000 for the provision of a depot at Bulwell, and £800 for purposes of street improvement.

NOTWITHSTANDING strenuous attempts to preserve the old buildings in Church Row, Hampstead, said to be among the finest examples of Georgian domestic Architecture in England, the work of demolition has already commenced. Blocks of flats are to take their place. The Row had many artistic and literary associations, and was picturesque, but the demand for mansions is superior to such considerations.

FOR the present the reign of Boadicea over Westminster Bridge has come to an end. The plaster cast of the British Warrior Queen in her Roman chariot has disappeared from the neighbourhood of the Clock Tower. On Monday week her head was unscrewed and her body dismembered; the steeds were decapitated and their legs sawn off; and the various portions of the group were carted away on County Council vans.

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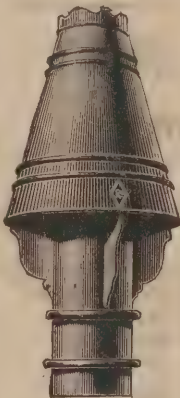
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JUNE 1ST, 1898.

Builders' Notes.

A CORRESPONDENT at Niagara writes to the Times, as follows:—The second great steel arch bridge which is being built across the gorge at Niagara Falls to take the place of the last of the suspension bridges is to be the largest of its kind in the world. The main arch was completed on April 18. The new bridge is to stand on the site of the upper suspension bridge close to the Falls, and will practically connect the two great free parks at Niagara, the New York State reservation on the one side, and Queen Victoria Niagara Falls Park on the other. The length of the main span is 868ft., and it will be connected to the cliffs by two approaching or flanking spans, the one on the New York State side to be 190ft. long, and the one on the Canadian side to be 210ft. long, making a total length of 1268ft., which is the length of the bridge it is to supplant. The arch is to be a single deck structure, and its floor will have a width of about 49ft. Of this about 23ft. in the centre will be given up to a double track for an electric road service across the gorge. On each side of the tracks there will be carriage-ways 8ft. wide, and beyond them still there will be footpaths for pedestrians slightly elevated above the roadways. The arch will not be of such heavy construction as the arch built two miles down stream last year for the Grand Trunk Railway, but it will be a far more graceful structure. In all about 4,000,000lb. of steel will be used in its construction.

THE work that remains to be done will progress rapidly, and it is expected that the structure will be finished by early summer. The arch will be the fourth bridge erected on this site, the first having been thrown open to the public in 1869. It was a wooden bridge, 10ft. wide, and in 1887-88 it was rebuilt in steel and given a width of 17ft. This bridge was destroyed by a hurricane in January, 1889. It was at once rebuilt, and it is this bridge that is now to give way to the new one. The difficulties that have to be surmounted in such a work as this are, of course, enormous. Only skilled labour can be used. All that is done must be done quickly, for in such works time is money. The men employed must have nerve and clear heads, and be able to hurry about on the timbers and steel nearly 200ft. above the water without faltering or making mistakes. In an undertaking of this nature the slightest error might be productive of great disaster. In making the sections every

measurement must be accurate to a hair's breadth. But this is not all in the present instance, for, when the arch shall have been completed, the suspension bridge that it supercedes is to be transferred piece by piece seven miles down the river to the site of the old suspension bridge connecting Lewiston, N.Y., and Queenston, Ont., and there rebuilt to take the place of the bridge destroyed by a wind storm in 1864. The cables of this old bridge have hung suspended across the gorge ever since, swinging to and fro in the wind, and occasionally crossed by some venturesome person. The rebuilding of the suspension bridge will of itself be a notable engineering feat, and one certain to attract much attention. The chief engineer in charge of the whole work is Mr. L. L. Buck.

THE building of the Jubilee Bridge over the Wye near Hereford Castle Green is now in progress. An excavation has been made in the pathway near the river hedge 11ft. deep and 14ft. by 5ft. wide for the first shore abutment. This hole is filled with concrete. A similar abutment will be made also on the opposite shore. On either hand of these abutments, as entrances to the walking way, will be a pediment 12ft. high of terra-cotta, displaying panels of the royal coat of arms, and surmounted by ornamental lamps. The distance across the river between the abutments will be 176ft. As soon as the weather permits the river to get low enough, perhaps in July, two central piers will be built in the river, each of them about 33ft. distant from its nearest shore abutments. The one nearest the garden goes down to the solid rock, and the other will be taken to a solid gravel foundation. Upwards of 200 concrete blocks, each weighing about $\frac{3}{4}$ cwt., have been hauled down to the garden ready to form the facing of the central piers. On the inner side of these blocks is a groove, by means of which concrete poured into the centre of the piers will key them together. The piers rise from a foundation of 10ft. diameter to a width of 6ft. above the water, tapering to 6ft. 4in. There will be a span of 110ft. between the piers. The boarded walking way, which is to be about 7ft. wide, will be 20ft. above the summer level of the river, and 6ft. to 7ft. above highest flood water, a foot higher in the centre than at the sides. It will be two steps higher than the present garden path, and several steps higher than the opposite bank. The little elm tree, which is but a sucker, will be removed. In addition to the ornamental lamp pediments at the entrance to the bridge, there will be ornamental parapets rising above the bridge

from the central piers. The metal work, which is being supplied by Messrs. Findlay and Co., Glasgow, at a cost of £599, comprises 17 tons 6cwt. of steel, such as chains, links, girders, main pillars, &c., and 1 ton 11cwt. of cast iron. It is estimated that the total cost of the bridge will be £1200.

A RUSSIAN correspondent in the Times gives the following particulars about the present state of the Trans-Siberian Railway:—"The railway is at the present moment in a completed state to as far as the 265th kilometre beyond Tcheliabinsk, and there remains only 354 more kilometres for it to reach the terminus point of the Central Siberian section that is to say, the town of Irkutsk. On the Western Siberian section all the works are actually completed. The length of this section is 1342 kilometres, and it has been open to traffic since October, 1896. The first section of the Central Siberian portion, from the Obi to Krasnoiarsk, a distance of 711 kilometres, is almost completed, and the necessary workshops are being built in that town. On the next section, from Krasnoiarsk to the left bank of the Angara, which is 1004 kilometres in length, the road is finished in a rough fashion for 342 kilometres and travellers are even conveyed by it. Further on the rails are also laid down for a length of 308 kilometres to as far as the station of Toulouna, but the ballast will not be completed before next year. Between Toulouna and the river Angara, the embankments, all the bridges of wood, and almost all the buildings are constructed, and, in consequence, it is hoped that about the end of August the railway will be running as far as Irkutsk.

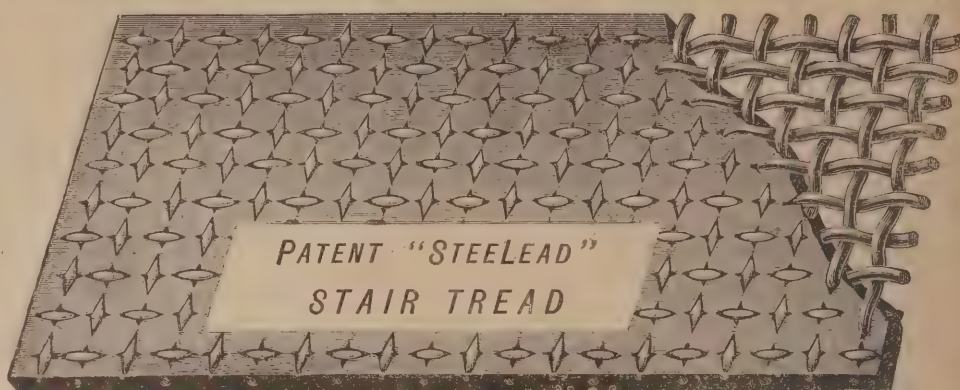
THE dispute between the Newport Master Builders' Association and the Carpenters' Societies, which resulted in the men being locked out before Easter, shows no signs of being settled. The masters during the last few days have abandoned the lock-out and have thrown their shops open. The men, however, desire a settlement of the overtime question, over which the dispute originated, but up to the present the masters have declined to consider the matter, and have attempted to fill their shops. The attempt has not met with success up to the present. In some few cases new hands have been obtained, but the men's officials have interviewed the new comers, and have succeeded in inducing more than half of the number engaged to leave work. The local societies are receiving support from other branches.

THE BUILDERS' VADE-MECUM.

MESSRS. YOUNG AND MARTEN'S
CATALOGUE.

A WORK that has taken some five years in its compilation, and absorbed £8000 in preparation, has certainly established a record, in catalogues, that will be "bad to beat." The two handsome volumes issued by Messrs. Young and Marten, of Stratford, E., well bound in cloth, with stiff boards, beautifully printed on stout paper, and containing nearly a thousand pages of engravings, including fifty lithographed in colours, of their vast stock of building materials and sundries, copiously indexed, fully priced and dimensioned, may well be termed a "Builders' Vademecum." Therein will be found in profusion, designs of marble, serpentine, slate, iron, and fancy wood chimneypieces, overmantels and tile grates, with stoves, ranges, and kitcheners in hundreds of varieties, suitable for any class of property, from the workman's cottage to the palatial hotel; and even the wants of the dashing yachtsman, or the more luxurious houseboat navigator, have not been forgotten. Fenders, curbs, dogs, brasses, designs in colour of tessellated tile, and mosaic hearths with all the various sundries of smith's work, as boilers, taps, plate racks, doors, hot-water tubes, &c., are comprised in the stove section. Baths and fittings in zinc, iron, copper, porcelain, and fireclay; lavatories and latrines, sanitary and other w.c.'s and fittings; ventilators, paperhangings, drain pipes, public-house fittings, timber, prepared joinery, wrought and cast-iron railings, columns, stable fittings, builders' machinery, cathedral lights, plumbers', gasfitters', carpenters', smiths', bricklayers', and painters' tools and sundries; to mention only a few of the prominent sections, indicate the wide range of this most comprehensive catalogue, from which nothing within the whole field of building operations seems omitted, and will also give some idea of the quantity of stock held by the firm, ready for immediate delivery, in their depôts at Stratford, Walthamstow, and Leytonstone.

The advantages offered to the architect, builder, and sanitary engineer, in thus gathering everything requisite to the construction of a modern building into one establishment, in the economy of time and expense, coupled with facility of inspection and comparison of various specialities, is too obvious to need comment. That the quality of the goods supplied by the firm, and their methods of business, have given satisfaction to their customers is very convincingly attested in the growth of the floor space of their warehouses, which in 1872 comprised an area of 1120 superficial feet, increased to, in 1897, 266,193ft. A truly remarkable progress, this—an increase of upwards of two hundred times the original area in a quarter of a century. In running through the catalogue we have noticed many



ingenious and novel specialities manufactured or stocked by the firm, a few of which, in the interests of our readers, we propose drawing especial attention to. In the "Russell Patent Titbit" grate, a remarkably ingenious arrangement for keeping a plate of food, &c., warm has been adopted, that will prove of great service in sick-room or nursery, or even the breakfast parlour. The grate is of the ordinary open fire pattern, with the usual canopy above. This, however, is hinged, and when let down discloses a good-sized oven or receptacle, passing over the fire in such way as to be heated, without interfering with the draught. The oven is removable, to allow of the chimney being swept. The "Herald Kitchen," by the same inventor, carries the idea of utilising occasional waste space still further. Here a collapsible oven is contrived over the hot plate of a kitchen range, a sheet-iron side plate lies folded at the back of the range, and a door hinged in front is folded on the end. These can quickly be brought into position at right angles with each other, thus forming an enclosed space equal in size to the oven beneath, in which bread may be baked, meat roasted, or water boiled, without using extra fuel, and at the same time to the advantage of the oven beneath, as there is no loss of heat by radiation. The range is also fitted with patent lifting bottom grate, cinder sifter, and usual accessories, and is altogether an inexpensive and useful kitchen fitment for a middle-class house.

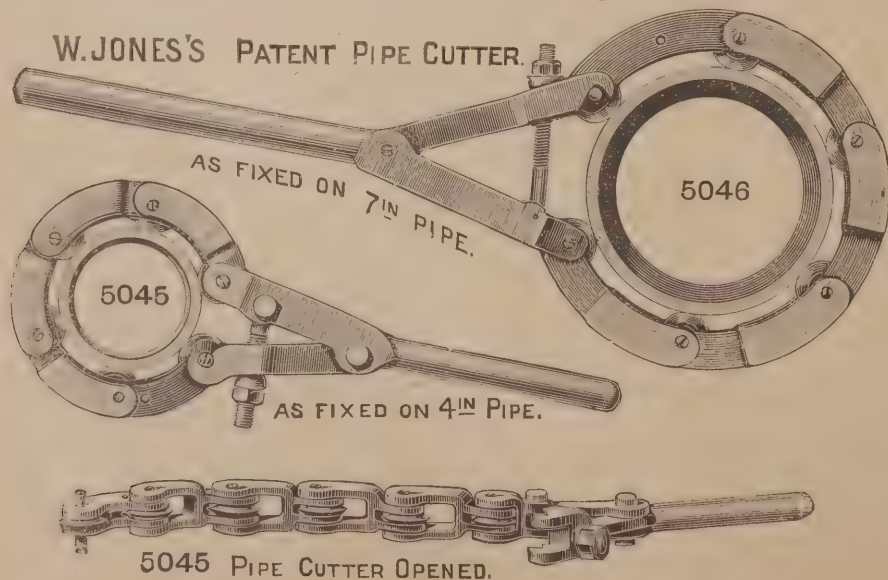
In the "Delight" portable and self-setting range the firm have undertaken to produce a cheap, reliable, and strong range, suitable for an artisan's kitchen, and that they have been successful seems beyond doubt, in the light of their statement, that they have supplied 100,000 without a complaint. The "Bramstone" combination bath and lavatory provides a convenient and ornamental adjunct to the reclining bath, in the shape of an ivory-ware porcelain basin superimposed at the foot of the bath, thus occupying no extra floor space, nor detracting from the comfort of the bather.

Separate waste pipes are provided, so that the water from the lavatory does not pass into the bath.

We note a very cheap and well-designed closet of the washdown type, made in stone-ware, called the "Straight-back." This is made in two pieces, with a deep-socketted trap, capable of adjustment at any angle with the pan to suit position of soil pipe. The water seal is a deep one, and there is a minimum of fouling surface. The curves of pan and trap are conducive to efficient discharge of the contents. The only thing wanting to make it perfect is an anti-siphon connection on the drain side of trap.

A very useful time and labour-saving tool for builders, whether in a large or small way of business, is the "Jones' Patent Pipe-Cutter," illustrated herewith. A number of hardened steel discs are pivoted between the links of a square chain, attached to a hinge-forked handle, and capable of adjustment to suit any size or shaped pipe, which is rapidly cut through by a few swings of the handle; it may be used in very confined spaces, and should prove very serviceable in cutting iron drain, down, or hot-water pipes; even in a jobbing shop it will soon repay its cost, in the avoidance of breakages. Among the smaller goods worthy of notice is the "grip" patent axle pulley. These pulleys have no face plates, the frame or casting, being reeded at the sides, simply require three suitable centre bit holes, bored in the pulley stile, when the pulley may be driven in, with a mallet flush with the face, a touch of paint or glue securing them. They seem strong and neat in appearance, and should save some 50 per cent. in labour. A very strong and efficient Turnbuckle for cupboards is shown in "Speciality No. 9;" the spindle is threaded into a sleeve on the buckle, secured to the knob with a set screw, and the latter works in a solid brass, sleeve rose, fixed to the face of the door, thus ensuring smooth action. One of the best designed hand mortising machines we have seen is the Centre Motion Mortiser, shown on page 660. In this the chisel carrier is of rectangular section of considerable length, and works in dovetail grooves, with adjustable cheeks, is raised and lowered by screw and handle at the top of column; the lever passes through a slot in the carrier directly over the chisel, thus gaining much additional power, and avoiding the cross strains set up by the cranked lever type, or the multiplicity of parts of the toggle movement, there are several accessory attachments, including a venetian blind punch and die, a very compact and evidently strongly made boring apparatus, with augers, twist bits, and drills, also a tenoning tool, the utility of which we rather doubt. The machine is listed at £12 7s. 6d., without the extra tools and should prove a good investment.

The patent "SteeLead" stair-tread is an ingenious combination of lead with steel, in which the grip of the softer metal is supplemented by the wearing properties of the harder. A network of stout, woven steel wire, is embedded by means of hydraulic pressure into a thick sheet of lead which is rendered much denser and harder in the process. It is supplied in any length and of various widths, from



2in. to 9in., to suit either nosings or treads, and is warranted "unslippable." It may be easily fixed either with nails or screws, and there is no creeping or wrinkling action, so detrimental to the durability of ordinary lead covering.

Messrs. Young and Marten are the sole agents for the "Eclipse" hot-water boiler, manufactured in Canada, a very compact and powerful apparatus, requiring no brick-setting or skilled labour to fix. The heating area is very large. Practically the whole surface of the boiler, with the exception of the door, is waterway, and the fire is taken in an unbroken sheet, by a sinuous course, some 11ft. of travel, from fire box to outlet, and thereby utilising to the utmost its heating capacity with consequent economy in fuel. The interior is very accessible for cleaning, and any worn parts are easily replaced. The whole thing is covered with asbestos packing, and should prove an efficient and rapid heater. In conclusion, we trust that the firm will reap the due reward of their enterprise in providing the trade with so serviceable and handsome an encyclopædia of building requirements.

At the Manchester County Court recently Mr. Yates, Q.C., the stipendiary magistrate, gave his decision with respect to an application of the Manchester Corporation for a

THE SANITARY INSTITUTE.

EXAMINATION SUCCESSES.

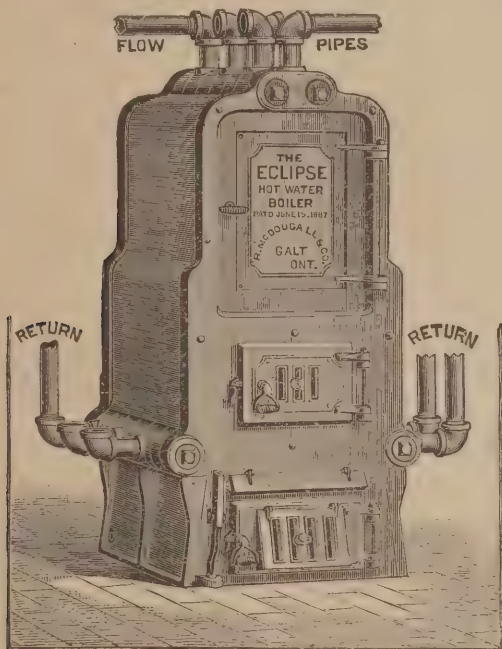
At an examination in practical sanitary science, held in London, on May 6th and 7th, 1898, twelve candidates presented themselves. The following five candidates were granted certificates in practical sanitary science:

Alfred Seabold Eli Ackermann, 53, Victoria Street, S.W.; Henry Bates, 100, Bunhill Row, E.C.; William Cumming Henley, Duke Street, Dartmouth; John Hipkin, The Manor House, Bedhampton, Havant, Hants.; Gilbert Thomas Inglis Oliver, The Archers, Woodchester Road, Stroud, Gloucester.

At an Examination for Inspectors of Nuisances, held in London on the same dates, 109 candidates presented themselves. The following 64 candidates were certified, as regards their sanitary knowledge, competent to discharge the duties of inspectors of nuisances:—

David Bagshaw, 38, Beatrice Street, Plais-tow, E.; William Barker, 16, Butt Road, Colchester; William John Bates, 101, Sussex Road, Holloway, N.; George Best, 16, Alfred Hill, Kingsdown, Bristol; Herbert Edward

mead Street, Fulham, S.W.; Charles Matthew Longden, 2, Warwick Place, W.C.; Percival William Luke, 12, Percy Road, Queen's Road, Gosport; Miss Annie Malone, 4, Brunswick Square, W.C.; Sidney Septimus Markham, 67, Springdale Road, Stoke Newington, N.; Miss Edith Louisa Maynard, Wolsey House, Harrow; Samuel James Maynard, 19, Lisson Residences, Lisson Street, N.W.; Frank Whiddon Melhuish, M.R.C.V.S., Health Department, Sydney, Australia; Miss Christabel Mennell, The Red House, Croydon; George Mitchell, Derby Union, Utttoxeter Road, Derby; Miss Catherine Alice Nevile, 3, Blythwood Villas, Stroud Green, N.; Ernest Archibald Norman, 65, St. Andrew's Road, Southampton; John Henry Pearson, 52, Needham Road, Liverpool; Miss Maud Elizabeth Piggott, 148, Castle Hill, Reading; Miss Kate A. Platt, 3, Great James Street, Bedford Row, W.C.; William Charles Portman, 46, Bolina Road, Cliftonville, Bermondsey, S.E.; Alfred George Potter, 10, Frant Road, Thornton Heath, Croydon; Joseph John Pratt, Hillingdon, near Uxbridge; Arthur Stephen Quelch, 136, Walton Street, Oxford; John Howell Reynolds, 6, Bridge Road, Wellington, Salop; Alexander Muir Robertson, 1, Ruby Place, Charlton Kings, Cheltenham; Edward William Sandford, 44, Exmouth Road, Gray's, Essex; Ernest Edgar Scott, 31, Newbury Road, Bromley, Kent; Miss Ethel Stewart, 3, Princess Road, Regent's Park Road, N.W.; Herbert Tavinor, 16, Denny Road, Lower Edmonton; Charles Russell Thomas, 142b, High Street, Lewisham, S.E.; Henry John Toogood, Town Hall, Spa Road, Bermondsey, S.E.; Henry Stephen Toogood, 56, Buxton Road, Thornton Heath Croydon; Mrs. Emily Caroline Townshend, 40, York Street Chambers, Bryanston Square, W.; Thomas Tribe, Church Road, Farncombe, Godalming; George Simpson Walker, 38, Nottingham Place, W.; George Robert Weeks, 45, Tasman Road, Clapham Road, S.W.; John Wells, 40, Jessica Road, Wandsworth Common, West Side, S.W.; James West, 142, Lillie Road, Fulham, S.W.; Thomas William Williams, 32, Barking Road, E.; Charles Northesk Wilson, 5, Grittleton Road, Elgin Avenue, Maida Vale, W.; Miss Teresa Frances Wilson, 20, Motcomb Street, Belgrave Square, W.; Isaac Worrow, 156, High Street, Shadwell, E.



further extension of time to enable them to carry out the order made by the Court in September, 1896, for the completion of the sewage works. This application, Mr. Yates said, was made by the Corporation of Manchester, who asked for an extension of time wherein to obey the order of the Court made, with the consent of the Corporation, on September 16, 1896, and extended by successive orders until May 11, 1898. The decision of the Court ought to depend mainly upon whether the Corporation had really decided upon any effective scheme for dealing with the sewage of the city. He did not mean whether the scheme put forward was the best or not—that was not a question for the Court, but for the Corporation—but whether the plan suggested was a final or only a tentative one. The bare facts were that the sewage of an ever-increasing population, now amounting to 600,000, was being turned into an almost stationary body of water unpurified; that that had been going on to a greater or less degree for at least five years; and that the Corporation were no nearer a final settlement of the question than they were in 1893. If the Court were still to prolong that period it would be stultifying itself and the order made by it, by consent of the parties, in 1896. They therefore unanimously and unhesitatingly refused the application, with costs.

Brown, 80, Grenard Road, Peckham; Tom Leonard Burrell, 24, Lordship Lane, Wood Green, N.; Harry Callow, Ferndale, 23, Arodene Road, Brixton Hill, S.W.; Miss Edith Helena Cordner, Torbay Mount, Torquay; George Edward James Davies, 4, Lupus Street, St. George's Square, S.W.; Samuel Nicholas Davy, The Coroner's Court, Cambridge Street, St. Pancras, N.W.; John Edward Dowell, 36, Havelock Road, West Kensington Park, W.; Henry Llewellyn Dunkin, 55, Brand Street, Greenwich; Edward Herbert Faragher, 7, Myrtle Street, Douglas, Isle of Man; Edwin Few, 17, Highbury Park, N.; Edwin Dowsing Gedge, 45, Arlies Road, Lavender Hill, S.W.; William Herbert Stevens Gowen, Roundstone Street, Trowbridge, Wilts; William James Griggs, 16, Alma Square, St. John's Wood, N.W.; Frank Archer Gwillim, Cwm Dulas, Pontinas, Hereford; Herbert Robert Hardy, 23, Pitt Street, Norwich; William Hawke, 11, Truro Road, St. Austell; Thomas William Hull, 1, Southmoor Road, Oxford; Howard Light Hyde, Ruby Villa, Pultney Road, Enfield Wash; Isaac Richard Jones, 18, Lucretia Road, Kennington, S.E.; William David Jones, 6, Dufours Place, Golden Square, W.; William Phillip Jones, U.D. Council Office, Cymmer, R.S.O.; Arthur Edward Lang, 30, Tottenham Street, Great Yarmouth; Arthur James Lester, 5, Perry-

SINCE the Cattewater scheme faded out of view, little has been thought of the subject of harbour development in Plymouth. It is, however, not wholly lost sight of. The Great Western Railway Company is proceeding with the execution of the works for the improvement of the entrance to the inner basin at Millbay Docks. Some delay was caused by the discovery that it was difficult to obtain a firm foundation at the exact spot fixed upon for the new works, but a very little alteration in the site overcame this trouble, and the contractors have now commenced operations.

The report of Sir Douglas Fox, who made an examination of the work at Hastings Harbour on March 8th, has just been issued. The eminent engineer first recites the character of his examination, and goes on to say that he considers the site well selected, and to deal with the work already carried out. He is of opinion that the foundations are of insufficient depth to be left unprotected on the seaward side. Commenting upon this, Mr. A. E. Carey, the engineer-in-chief, says that in his judgment the weight on the foundations is perfectly safe and proper. The local defects discovered, he adds, were not serious, and the contractors were responsible for their repair. Sir Douglas Fox's report proceeds to refer to the danger of scour, and suggests modifications as regards the foundations of the parapet. Other suggestions advised an improved method of continuing the arm, and an increase in the thickness of the parapet. Sir Douglas was of opinion that the revised estimate of £226,532 would cover the cost of the works. Mr. Carey thinks Sir Douglas Fox's schemes for the prevention of scour and with regard to the thickness of the parapet are impracticable, and that the design of the breakwater has been justified by the results.

PRACTICAL CARPENTRY AND JOINERY.*

BY GEO. ELLIS.

(Continued from page xlv.)

VIII.—DOOR FRAMES & FINISHINGS.

THE frames in which doors are hung are termed solid frames, or jamb-linings, according to the position they occupy; external doors being hung in substantial frames, of nearly square section, with rebate, and mouldings worked out of the solid stuff; internal ditto, in comparatively thin pieces of framework, built up in several pieces, and much wider than thick as they have to line, the entire sectional surface of the wall finishing flush with the plaster on each face. Solid frames are sometimes employed for interior doors, where great strength is required, as in the swing door, illustrated in the previous article; but generally the jamb lining is employed, one edge being utilised as a frame for the door, the other recessed in a similar manner to match.

Figs. 113-114 illustrate an ordinary solid frame for a small doorway out of $4\frac{1}{2}$ in. square stuff, the upright members are termed posts or "jambs," and the horizontal a "head," this is frequently made to do duty for a lintel, the core of the discharging arch being built directly upon it, as illustrated; whether used for this purpose or not, the head should run over the jambs about 3 in., and may be built into the wall as a fixing, this makes much better work than framing the head between the jambs, as any weight that may come upon the head will then be received by the squarely abutting shoulders of the post on each side of the tenon. These frames are set behind a $4\frac{1}{2}$ in. reveal in the wall, in a $4\frac{1}{2}$ in. set back,

the portion not covered by the frame being lined with a thin casing tongued into the frame on one edge and fixed to wood plugs driven into joints in the brickwork at intervals of about 2 ft., the ground fixed to the front edge is wrought and moulded, and acts also as an architrave.

The isometric sketch (Fig. 115) shows the method adopted for fixing the bottom ends of the jambs into a stone sill; when a wood sill is used the jamb is tenoned and wedged as in the head. A very good method of fixing these frames, especially in stone walls, where it is not so convenient to build the horns of frames in, is shown at the left of Fig. 113; wrought iron straps are bedded in a joint of the wall on each side of the frame, one end is turned up at right angles for about 2 in. and has a hole punched in, which enables it to be fixed to the post with a clout nail or screw, the courses are then proceeded with; other ties being inserted where necessary, thus forming a very secure fixing. The ties should, of course, be painted, as should also all parts of the frame, and linings built into, or contiguous to the walls.

It is advisable not to let the woodwork actually touch the walls—an air space of about 1 in. will prevent dry rot, and the brickwork should be kept clear of the head with a couple of laths. One half of the elevation shows the plaster casings, &c., removed to make clear the method of fixing.

Fig. 116 is a large solid frame with side and fanlights, suitable for a dwelling-house entrance; this class of frame is constructed in a similar manner to the last, so far as the outer frame is concerned, the members of which bear the same names; two additional members are here introduced—the transom, A, and two mullions. Some difference of opinion exists amongst joiners as to which is the better way of framing the internal parts, many contending that the transom should be continuous, and so act as a tie to the frame to prevent racking; the present writer holds to

the contrary opinion, that there is little or no strain in a horizontal direction, but much in the vertical, due to the weight and motion of the doors, therefore he advises that the mullions should be continuous, and the transom cut and framed between them, a joint for the purpose that will withstand any ordinary strain, is shown in the enlarged section (Fig. 117). The tenon on each piece of the transom is cut long enough to go through the solid part of the mullion; the tenons are then haunched back in dovetail pairs, as shown. The mortise in the mullion above the transom is made sufficiently long, to enable the wider portions of the tenons to slide past each other, and, when in place, they are glued. A pair of folding wedges fill the mortise and dovetail the transom together; these wedges are hidden by the fanlights. The joint can also be made with two stump tenons and a handrail bolt, but it is not so good as the above, as the nut sometimes releases itself when subjected to vibration.

Fig. 118 shows the top part of a segment-headed solid frame. These are constructed in practically the same manner as "square heads;" the head is cut out of the solid, the back following the soffit curve to the springing, where it is taken off parallel to the springing line (the "springing" is the point where the curve intersects the vertical side of the opening, and the springing line is a straight line joining the two points). In taking the height of a curved opening, the workman always measures from the sill to the springing, and then adds the rise in the centre; this affords him the three necessary points to describe the curve (see article on "Centering"). An enlarged detail of the joint between head and jamb is shown in Fig. 119. When the frame exceeds $4\frac{1}{2}$ in., double tenons should be employed, as shown in the details, Figs. 120-121, which are the end of jamb and head respectively. The semi-headed frame (Figs. 122-123) is constructed somewhat differently from those hitherto dealt with. The two jambs and the transom are worked in the solid, but the head

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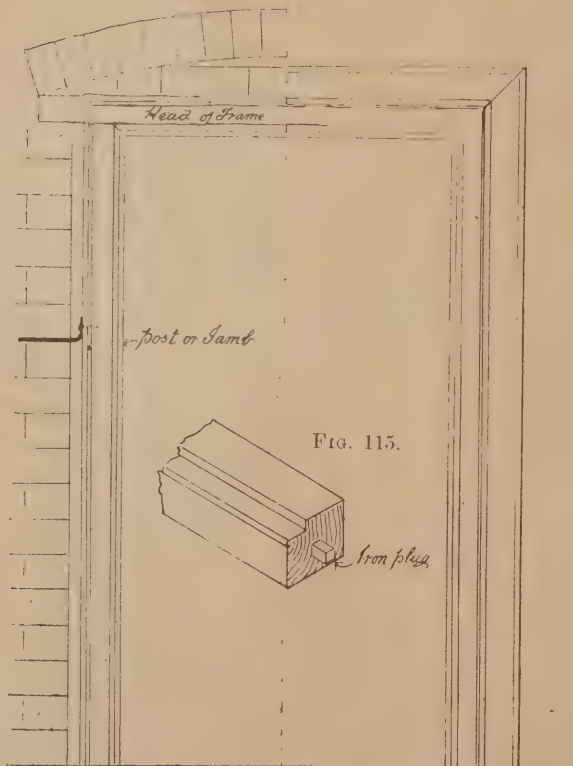


FIG. 113. ELEVATION OF A SOLID FRAME.

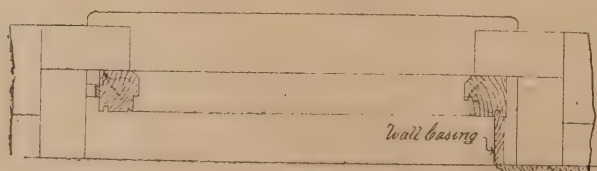


FIG. 114. PLAN OF SOLID FRAME.

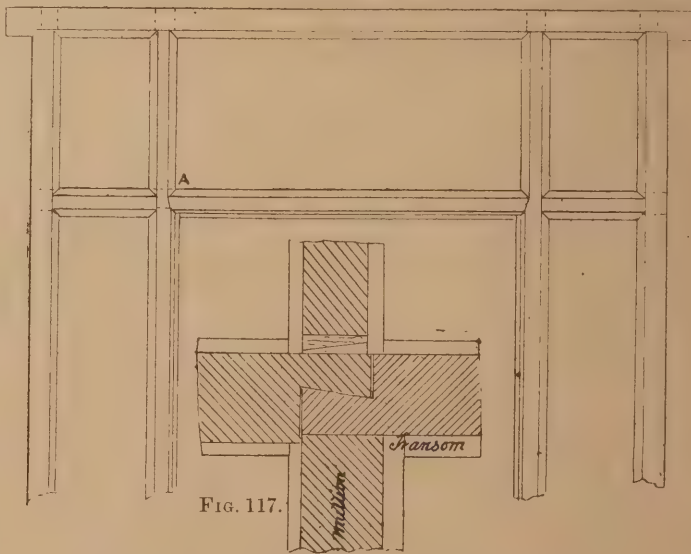


FIG. 116. A SOLID FRAME WITH SIDE LIGHTS.
FIG. 117. ENLARGED DETAIL OF JOINT AT A.

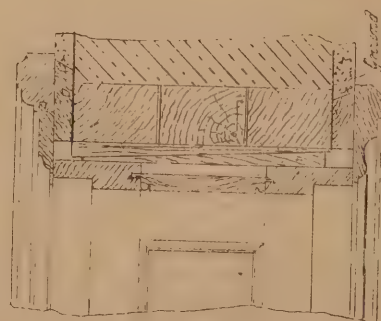
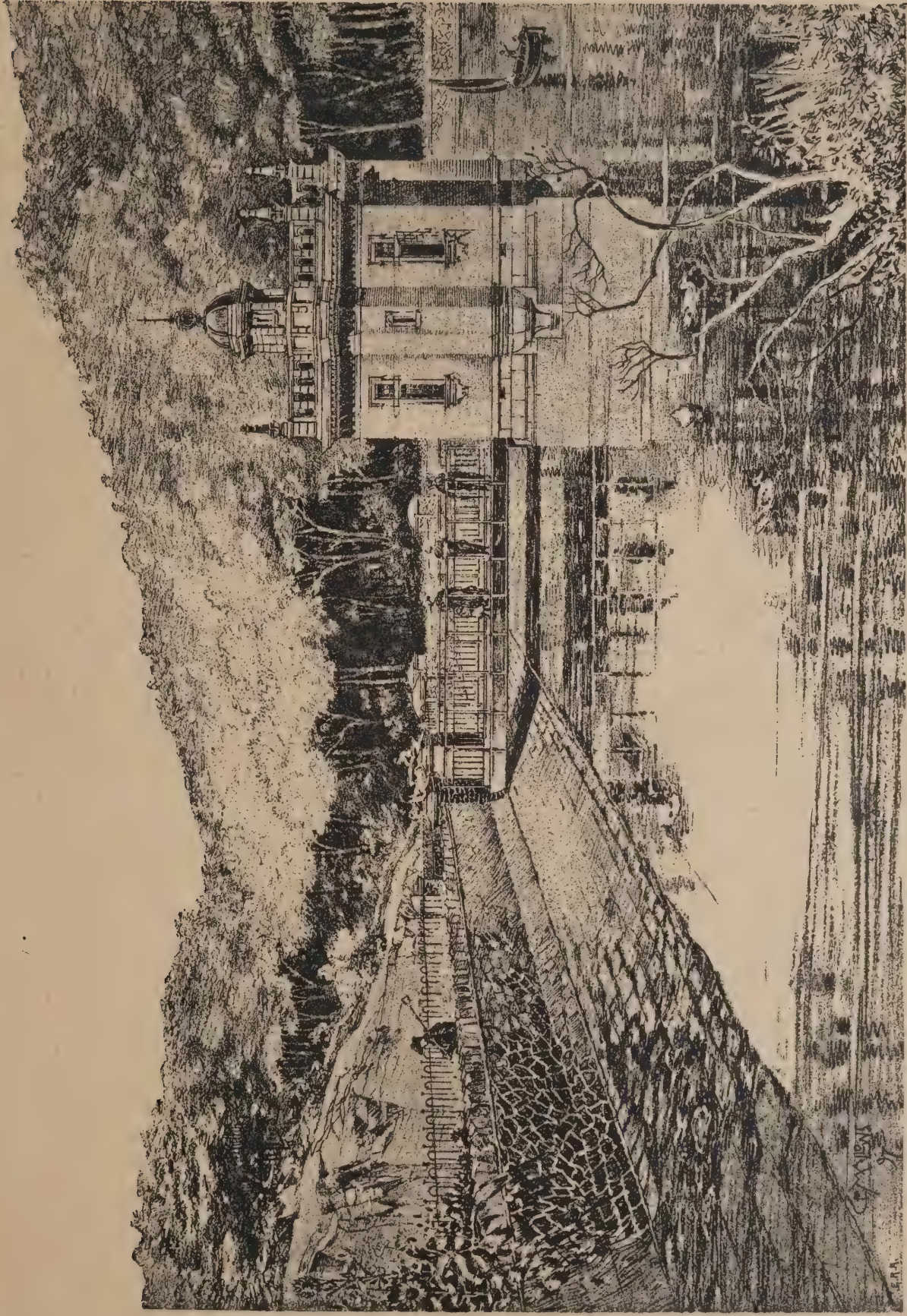


FIG. 118. FRAMED LININGS.

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LEICESTER CORPORATION WATERWORKS. THE GATE LODGE. MESSRS. EVERARD AND PICK, ARCHITECTS.



LEICESTER CORPORATION WATERWORKS. THE VALVE HOUSE. MESSRS. EVERARD AND PICK, ARCHITECTS.

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is built up of several pieces, arranged in two layers, glued and screwed together, the butt joints in each layer made to fall on the centre of the piece behind it. In the illustration the outside ring is made up of three pieces, the inside of two. The springing joints are square, and made with a hammer-head key. It makes much the stronger frame to keep the transom a few inches below the springing, with a double tenon arranged on each side of the key. When the necessities of the design prevent this, the joint of the jamb with the head should be in the middle of the depth of the transom, a single tenon on the latter running through, and the ends of the head and jamb forked over it; a long handrail screw should then pass through the lot.

(To be continued.)

THE Rural District Council of Basford has applied to the Local Government Board for sanction to borrow £2300 for purposes of sewerage and sewage disposal for the parish of Cossall. Mr. H. Walker (engineer of Works) has prepared the plans for the scheme.

THE Pontefract Town Council recently sent a deputation to Exeter to inspect the septic system of sewage treatment, with the result that the Council has decided to adopt the system. The existing sewage works will be used, and all that will be needed will be the acquisition of septic tanks.

A MEETING has been held in the Queen's Hall of the Three Nuns Hotel, Aldgate, E., "to urge the necessity for more air ventilation on the Underground Railway system. A resolution was adopted urging the local vestries to abandon their opposition to the proposed ventilators in the interest of the health of the travelling community.



FIG. 118A. SEGMENT HEAD FRAME.

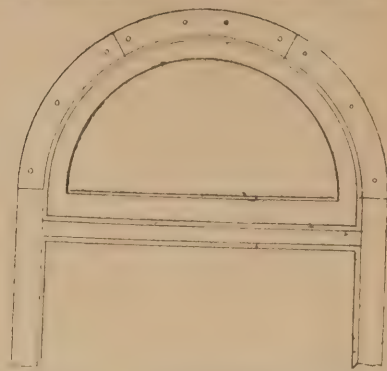


FIG. 122. A SOLID SEMI-HEAD FRAME.

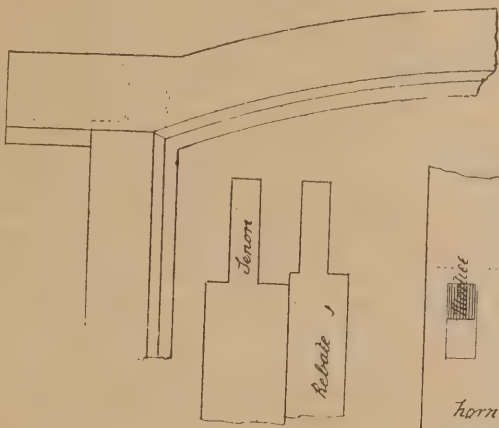


FIG. 119.

FIG. 120.

FIG. 121.

DETAILS OF SEGMENT FRAME.

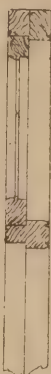


FIG. 123.
SECTION.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
June 4	Amble—Erection of Schools	...	Station Hotel, Amble.
" 4	Annalong, Co. Down—Erection of Church Tower	...	H. Leaver, 128, Royal-avenue, Belfast.
" 4	Bath—Erection of Sanitary Blocks	Union Guardians	— Oliver, Alfred-street, Bath.
" 4	Blackburn—Infirmary Basement	...	Simpson and Duckworth, Richmond-chambers, Blackburn.
" 4	Christchurch, Hants.—Covered Passage	Guardians	A. Druitt, Clerk, Workhouse, Christchurch.
" 4	Hampstead Norris, Berks.—School Alterations, &c.	...	J. H. Money, Architect, The Broadway, Newbury.
" 4	Liskeard—Erection of Infirmary	...	J. Sansom, Architect, Kiskeard, Greenbank-lane, Liskeard.
" 4	Mullingar—Erection of Mortuary	Board of Control	G. E. Shanahan, Custom House, Dublin.
" 6	London, N.—Erection of Park-keeper's Lodge	Hornsey Urban District Council	E. J. Lovegrove, Surveyor to Council, Southwood-lane, N.
" 6	Rugby—Alterations, &c., to Stores	Co-operative Society	J. T. Franklin, 40, Bridget-street, Rugby.
" 6	Consett—Erection of Shops, &c.	W. E. Turner	W. S. Shell, Architect, Taylor-street, Consett.
" 6	Hitchin—Additions to Laundry	Visiting Committee	G. T. Hine, 35, Parliament-street, Westminster.
" 6	Lancaster—Erection, &c., of Detached Residence	W. Cumming	W. S. Shell, Architect, Taylor-street, Consett.
" 6	Leicester—Butchers' Stalls	Corporation	E. G. Mawbey, Borough Surveyor, Town Hall, Leicester.
" 6	Llangollen, Wales—Restoration of Chancel	...	S. W. Williams, Architect, Rhayader, Raiaorshire.
" 6	Porth, Wales—Additions, &c., to Chapel	...	T. Howell, 49, Hannah-street, Porth.
" 6	Rotherham—Erection of Buildings at Gasworks	Corporation	Gas Offices, Rotherham.
" 6	Selby—Erection of Purifier House, &c.	Urban District Council	W. J. Mott, Engineer, Council Offices, Selby.
" 6	Tamworth—Alterations to Schools	School Board	P. J. and J. Goodacre, 5, Friar-lane, Leicester.
" 7	Cefn, Denbighshire—Erection of Cottage	Great Western Railway Co.	Engineer, Great Western Railway Station, Wolverhampton.
" 7	Weston-super-Mare—Erection of Post Office	Commissioners H.M. Works	12, Whitehall-place, S.W.
" 7	Bradford—Erection of Villas	...	S. Spencer, 344, Great Horton-road, Great Horton, Bradford.
" 7	London, E.—Construction of Footbridge	Poplar Board of Works	Surveyor, Board's Offices, 117, High-street, Poplar, E.
" 7	London, E.—Construction of Underground Convenience	Poplar Board of Works	Surveyor, Board's Offices, 117, High-street, Poplar, E.
" 8	Watford—Erection of Electric Light Station	Urban District Council	Gordon, Lowther, & Gunton, Finsbury Ho., Blomfield-st., E.C.
" 8	Bingham, Notts.—Erection of Culvert, &c.	Rural District Council	C. Parnham, District Surveyor, Cotgrave, Notts.
" 8	Halifax—Erection of Warehouse, Boiler House, &c.	Fletcher Bros. Limited	C. F. L. Horsfall & Son, Architects, Lord-st.-chbrs., Halifax.
" 8	Blairgowrie, Scotland—Alterations, &c., to Farms Steading	...	A. Spalding, Wester Essendy, near Blairgowrie.
" 8	Caton, Lancaster—Erection of Houses	...	N. G. Lewis, 1, New-road, Lancaster.
" 8	Bargoed, Wales—Erection of Chapel	Parish Council	J. Llewellyn, Hanbury-road, Bargoed.
" 8	Gwennap, Cornwall—Erection of Cattle House, &c.	Rural District Council	C. James, Comfort, Gwennap.
" 8	Hatfield, Herts.—Erection of Mortuary	...	J. B. Dunham, Clerk, Hatfield.
" 8	Leeds—Erection of Underground Conveniences	Co-operative Society	T. Hewson, City Engineers, Municipal-buildings, Leeds.
" 8	Skewen, Wales—Erection of House and Shop	Union Guardians	Neath Abbey & Skewen Co-operative Society's Stores, Skewen.
" 8	Wareham—Erection of Bathrooms, &c.	School Board	W. W. Fookes, Architect, Wareham.
" 9	Aberdeen—Erection of School	...	J. A. O. Allen, 31, King-street, Aberdeen.
" 9	Eccleshill, Yorks.—Erection of Residence	...	J. Kendall & J. H. Bakes, Calverley-chbrs., Victoria-sq., Leeds.
" 9	London—Erection of Underground Convenience	Hampstead Vestry	Surveyor, Vestry Hall, Hampstead.
" 11	Eggleston, Darlington—Erection of Fence	Parish Council	J. C. Hill, Eggleston House, Eggleston.
" 13	Sheffield—Erection of Electric Power Station	Tramway Committee	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 14	Yarm, Yorks.—Widening Bridge	North Riding County Council	W. Stead, County Surveyor, Northallerton.
" 17	Swansea—Erection of Post Office	Commissioners H. M. Works	12, Whitehall-place, S.W.
" 18	Manchester—Alterations, &c., to School	School Committee	Maxwell and Take, 41, Corporation-street, Manchester.
" 21	Warrington, Surrey—Foundations of Asylum, &c.	Croydon Town Council	Borough Engineer, Town Hall, Croydon.
" 21	London—Boundary Wall at Pumping Station	London County Council	Engineers' Department, County Hall, Spring-gardens, S.W.
" 25	Flookburgh—Erection of Cottages	...	J. Crow, Flookburgh.
" 27	Epsom—Superstructure of Asylum	London County Council	G. T. Hine, 35, Parliament-street, S.W.
" 28	Cape Town—Erection of Bldgs., Electric Machinery, &c.	East London Town Council (Cape)	Dyer and Dyer, 17, Aldermanbury, E.C.
" 30	Workington—Alterations, &c., to Infirmary	...	F. W. Jackson, Secretary, Infirmary, Workington.
" 30	Newark—Alterations to Infirmary, &c.	...	Sheppard and Harrison, Architect, Kirkgate, Newark.
uly 24	Addingham, near Carlisle—Church Restoration	...	G. Dale, Architect, Carlisle.
ug. 31	Belem, Para, Brazil—Slaughter-house and Yard, &c.	Municipality	Commercial Department, Foreign Office, S.W.
ct. 24	Guayaquil—Construction of Custom House	Ecuadorian Government	Commercial Department, Foreign Office, S.W.
" "	Belem, Para, Brazil—Cattle Pens, Abattoir, &c.	...	Brazilian Legation, London.
" "	Barry, near Cardiff—Carrying-out Work at House	J. Cory, J.P., D.L.	J. P. Jones, Richards and Budgar, 18, St. Mary-st., Cardiff.
" "	Belfast—Extending, &c., Licensed Premises	E. Smith	T. V. Brennan, 21, Waring-street, Belfast.
" "	Belfast—Erection of Nine Houses and Two Stores	...	Alexander and Reid, 105, Royal-avenue, Belfast.
" "	Bristol—Erection of Factory	...	F. Shove, 8, Colson-avenue, Bristol.
" "	Carlisle—Additions to Drill Hall	...	G. D. Oliver, 5, Lowther-street, Carlisle.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
ENGINEERING—			
June 4	Eastbourne—Gasholder Tank	Gas Company	H. E. Jones, Engineer, Harford-street, Stepney.
" 4	Leyland, Lancs.—Filtration Works & Sewer Extensions	Urban District Council	W. Wannell, 9, Harrington-street, Liverpool.
" 4	Worcester—Supply, &c., of Boiler	City Council	T. Lakin, City Engineer, Guildhall, Worcester.
" 4	Criccieth, Wales—Sinking, &c., Well	Corporation	W. B. C. Jones, 4, Salem-terrace, Criccieth.
" 4	Pontefract—Construction of Engines, Pumps, &c.	Corporation	Borough Surveyor, Town Hall, Pontefract.
" 4	Pontefract—Construction of Covered Reservoir, &c.	Corporation	Borough Surveyor, Town Hall, Pontefract.
" 6	Wicklow—Harbour Improvements	Harbour Commissioners	Sir A. Rendel, 8, Great George-street, Westminster, S.W.
" 6	Sunderland—Supply of Girders and Columns, &c.	River Wear Commissioners	H. H. Wake, Engineer, Commissioners' Quay, Sunderland.
" 6	Belfast—Supply of Dynamos	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 6	London, S.E.—Supply of Electric Lighting Plant	Vestry of St. Mary, Newington	Kincaid, Waller, & Manville, 29, Gt. George-st., Westminster.
" 6	Taunton—Alternator Engines, Switchboard, &c.	Corporation	Kincaid, Waller, & Manville, 29, Gt. George-st., Westminster.
" 6	Belfast—Portable Bridges, and Jetty, &c. ...	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 6	Blackburn—Widening Bridge	Highway Committee	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
" 6	Guildford—Supply, &c., of Flood Gates	Town Council	C. G. Mason, Borough Surveyor, Tunsgate, Guildford.
" 6	Selby—Construction of Gasholder, Purifier House, &c.	Urban District Council	W. J. Mott, Engineer, Council's Offices, Selby.
" 6	Kingston-on-Thames—Electric Light Installation	Workmen's Club and Institute	Engineer, Electric Light Works, Down Hall-rd., Kingston.
" 7	Coventry—Electric Mains, &c.	Electric Lighting Committee	G. S. Ram, City Electrical Engineer, Coventry.
" 7	Stoke-on-Trent—Supply of Gas-Engine	Town Council	W. Bowen, Borough Surveyor, Town Hall, Stoke-upon-Trent.
" 7	Wellow—Reconstruction of Bridge	Isle of Wight Rural District Council	J. F. Haynes, Surveyor, Park-road, Cowes.
" 8	London, W.—Electric Lighting Plant	Hammersmith Vestry	A. H. Preece, 39, Victoria-street, Westminster.
" 8	Eyemouth, Berwickshire—Construction of Sea Wall	Colne Valley Water Company	Meik and Sons, 21, York-clamp, Edinburgh.
" 11	Bushy, Herts—Construction of Covered Reservoir	County Council	J. Taylor, Sons, & Sinto Crimp, 27, Gt. George-st., Westm.
" 11	Oakworth, Keighley—Construction of Reservoir	Urban District Council	J. Judson and Moore, Architects, Oakworth, near Keighley.
" 11	Westacre, Norfolk—Erection of Bridge in Steel	County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 13	Ilford—Sludge-pressing Machinery	Urban District Council	J. Taylor, Sons, & S. Crimp, 27, Great George-st., Westminster.
" 13	Bury St. Edmunds—Engine, Boiler-house, Plant, &c.	Corporation	F. H. Medhurst, Westminster-chambers, Victoria-st., S.W.
" 15	Salford—Sewage Tanks, &c.	River Conservancy Committee	Borough Engineer, Town Hall, Salford.
" 21	Sheffield—Construction, &c., of Bridge	Corporation	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 21	London, S.W.—Supply of Engines, Dynamos, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 22	Scunthorpe, Lincs.—Well and Borehole	Urban District Council	A. M. Cobban, Surveyor, Howe-street, Scunthorpe.
IRON AND STEEL—			
June 6	London, E.C.—Supply of Materials	Corporation	Surveyor's Office, Guildhall, E.C.
" 6	York—Railway Stores	North-Eastern Railway Co.	E. H. Clark, Stores, Gateshead.
" 8	Blackburn—Iron Conservatory, &c.	Corporation	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
" 10	Lichfield—Supply of Cast-iron Pipes	Trustees of Conduit Lands	A. E. Chinn, Warden, The Close, Lichfield.
" 15	London, E.C.—Railway Stores	East Indian Railway Co.	A. P. Dunstan, Secretary, Nicholas-lane, E.C.
Aug. 23	Coolgardie, Australia—Steel Pipes	Government of Western Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
PAINTING AND PLUMBING—			
June 4	Ossett, Yorks.—Painting Chapel	Trustees	H. Hewitt, Wesley-street, Ossett.
" 6	Doncaster—Painting at Waterworks	Corporation	Borough Surveyor, Mansion House, Doncaster.
" 8	Westminster—Painting, &c., Model Dwellings ...	St. James' Vestry	Vestry Hall, Piccadilly, W.
" 11	Aberyschan, Wales—Painting Bridges, &c. ...	Urban District Council	E. Cook, Surveyor, Council Offices, Aberyschan.
" 13	Aberdeen—Limewashing Courts, &c.	Town Council	Sanitary Inspector, City-buildings, Aberdeen.
No date.	Bradford—Painting, &c., to Theatre	Co-operative Provision Society Limited	J. Howe and Co., Contractors, Whitby-st., West Hartlepool.
"	Bury, Lancs.—Painting, &c., Offices, &c. ...	Trustees	Manager's Office, Bury.
"	Rotherham—Redecorating, &c., Chapel	Trustees	J. W. Jackson, Springbank, Rotherham.
ROADS—			
June 4	Eastbourne—Road Material	Town Council	R. M. Gloyne, Borough Engineer, Town Hall, Eastbourne.
" 4	Leeds—Supply of Materials	Rural District Council	J. H. Ford, Clerk, Poor Law Offices, East-parade, Leeds.
" 6	Guildford—Paving Works	Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
" 6	Little Woolton, Liverpool—Supply of Granite, Macadam, &c.	Urban District Council	J. Bourne, Surveyor, Grange-lane, Gateacre, nr. Liverpool.
" 6	Neath, Wales—Supply of Materials	Rural District Council	W. E. Thomas, Engineer, Post Office-chambers, Neath.
" 6	Rothwell—Supply of Road Materials	Urban District Council	W. T. Pearson, Surveyor, Rothwell.
" 6	Wimborne—Roadmaking	Urban District Council	C. Munckton, Council Offices, Wimborne.
" 7	Fleetwood, Lancs.—Paving with Setts	Urban District Council	R. T. Hayes, Surveyor, Town Hall, Fleetwood.
" 7	London, W.—Wood Paving	Kensington Vestry	W. Weaver, Surveyor, Town Hall, Kensington High-st., W.
" 7	Maidstone—Road Material	Urban District Council	F. T. Bunting, Borough Surveyor, Fairmeadow, Maidstone.
" 7	Newton Nottage, Porthcawl—Road	Glamorgan County Council	County Surveyor, Town Hall, Bridgend.
" 7	St. Alban's—Supply of Granite, Kerbing, &c. ...	Corporation	A. H. Debenham, Town Clerk, St. Alban's.
" 7	London, N.—Repairs to Tar and Asphalte Paving	Tottenham Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
" 8	Winsford, Cheshire—Road Material	Urban District Council	Surveyor, District Council Offices, Winsford.
" 8	London, E.—Water Vans and Wood Paving Work	Hackney Vestry	J. Lovegrove, Chief Surveyor to Vestry, Hackney.
" 8	Mitcham—Road Making	Croydon Rural District Council	Borough Surveyor, Town Hall, Croydon.
" 10	Hetton, Durham—Supply of Slag, Chippings, &c.	Urban District Council	G. G. Forster, Surveyor, Hetton-le-Hole, R.S.O.
" 11	Slough—Making-up Streets	Urban District Council	Surveyor, 11, Mackenzie-street, Slough.
" 11	Wigan—Paving Materials	Corporation	Borough Engineer, Municipal Offices, Wigan.
" 14	Epsom—Supply of Flints	Urban District Council	E. R. Capen, Surveyor, East-street, Epsom.
" 16	Eccles, Lancs.—Road Works	Highways Committee	G. W. Bailey, Town Clerk, Town Hall, Eccles.
" 25	Brierfield, Lancs.—Road Material	Urban District Council	J. T. Landless, Engineer, Station-buildings, Nelson, Lancs.
" 26	Aberdeen—Road Work	Town Council	W. Dyack, Borough Surveyor, Town House, Aberdeen.
SANITARY—			
June 4	Shettleston, Lanark—Sewers	District Committee	Warren and Stuart, 115, Wellington-street, Glasgow.
" 6	Tring—Sewerage Works	Urban District Council	A. W. Vaisey, Council Offices, Tring.
" 6	Lyeheld—Sanitary Works	Charlton King's School Board	J. Villar, No. 1, Cambray.
" 8	Princes Risborough, near High Wycombe—Sewers	Rural District Council	J. Taylor, Sons, and Crimp, 27, Great George-street, S.W.
" 8	Stockport—Sewerage	Highways and Sewers Committee	J. Atkinson, Borough Surveyor, Petersgate, Stockport.
" 8	Wycombe—Stoneware, &c., Sewers	Rural District Council	Taylor, Sons, and Crimp, 27, Great George-street, S.W.
" 11	Aberyschan, Wales—Sewer	Urban District Council	E. Cooke, Surveyor, Council Offices, Aberyschan.
" 18	Plymouth—Pumping Station and Sewers ...	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 20	Totnes—Sewerage Works	Corporation	W. F. Toller, Borough Surveyor, Gate House, Totnes.
" 21	Hale, Cheshire—Construction of Sewers, &c. ...	Bucklow Rural District Council	J. M'D. M'K. azie, 7, Market-street, Altrincham.
" 25	Ashby-de-la-Zouch—Sewers, Manholes, &c. ...	Urban District Council	J. B. Everard, Millstone-lane, Leicester.
TIMBER—			
June 6	Erith—Erection of Oak Fencing	Urban District Council	F. Parish, Council Offices, High-street, Erith.
" 7	London, S.W.—Erection of Oak Fence	Wandsworth Burial Board	G. T. Clouting, Clerk, Town Hall, Wandsworth, S.W.
" 7	London, W.—Supply of Pitwood	Great Western Railway Co.	Secretary, Paddington Station, London.
" 11	South Hetton, Durham—Colliery Timber ...	Coal Company Limited	J. R. Lambert, South Hetton, Sunderland.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 7	Salford—Designs for Chapels, &c., at Cemetery ...	£50, £30, £20	Corporation.
" 9	Castletownbere, Ireland—Scheme for Town Sewerage ...	... ..	Guardians.
" 24	East Ham—Offices, Fire Station, and Public Baths ...	£105, £52 10s.	Urban District Council.
" 30	West Bangor, N.B.—Asylum Buildings ... ..	... ..	Edinburgh District Lunacy Board.
July 1	Linslade—Plans and Estimates for Sewerage Disposal and Water Supply Schemes.	... ..	Urban District Council.
" 1	Widnes—Laying-out Park, &c.	£36 15s., £10 10s., £5 5s.	Jubilee Commemoration Committee.
" 1	San Francisco Bay—Designs for University Buildings...	£10,000 (divided in two competitions)	Trustees of the Phebe A. Hearst Fund; represented in England by the R.I.E.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition

TENDERS.

BRISTOL.—For alterations, &c., at Hanbury Court, near Bristol, for Mr. T. J. Lennard. Messrs. Norman G. Bridgman and Walter H. Bridgman, architects, of Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton.

Alterations.
Cowlin and Son ... £3,795 | Thomas and Son ... £3,552
Wilkins and Sons ... 3,700 | S. R. Gorvett (accepted) 3,488
[All of Bristol.]

Joinery.
Cowlin and Son ... £249 0 | S. R. Gorvett ... £579 0
Howard and Sons ... 648 3 | Thomas and Son ... 574 0
Tramell and Gane ... 683 0 | Elliot and Co., New-
bury ... 598 0 | bury ... 468 0
* Accepted.

Vinery, &c.
Skinner and Co., Bristol ... £319 14

COMPTON.—For the erection of a Baptist Chapel. Messrs. Norman G. Bridgman and Walter H. Bridgman, architects, of Torquay, Paignton and Teignmouth:—
Panstone & Mum- ... S. Blatchford, Tor-
quay ... £420 0 0 | ... £390 18 6
S. Hawkins ... 415 0 0 | * Accepted.

GORTIN (co. Tyrone, Ireland).—For the erection of a church, for the Rev. F. Healey. Mr. E. J. Toye, architect, Strand, Londonderry.

David Funston, Brookboro, co. Fermanagh £2,581 5

IPSWICH.—For additions to the California School, for the School Board. Mr. T. W. Cotham, architect, Northgate-street, Ipswich:—

Parkington and Son £700 0 | F. Bennet ... £600 0
G. A. Kenney ... 657 10 | W. Grayston ... 586 0
S. A. Kenney ... 644 0 | A. Grayford (accepted) 511 0
Grimwood and Sons 635 0 | [All of Ipswich.]

IPSWICH.—For the erection of a central fire station, for the Corporation. Mr. E. Buckham, Borough Surveyor, Town Hall, Ipswich:—

Girling ... £4,263 | Roper ... £4,220
Grimwood and Sons ... 4,263 | Thos. Parkington & Sons £3,850
* Accepted. [All of Ipswich.]

LANCASTER.—For rebuilding the Liverpool Bank, Limited. Mr. J. F. Curwen, architect, 26, Highgate, Kendal:—

J. Hatch and Son, Lancaster ... £3,996

LONDON.—For erecting two villa residences at Blackheath, for Mr. Sherley Price, C.E. Mr. T. Norman Dinwiddie, architect, Greenwich, and 5, Whitehall:—

H. L. Holloway ... £5,894 | Kennard ... £5,542
Jerrard ... 5,775 | * Accepted subject to revision.

LONDON.—For reinstating, after fire, the Salvation Army Shelter, Bermondsey. Messrs. Barnes-Williams, Ford, and Griffin, architects:—

Pritchard and Ren- ... Falkner and Sons ... £2,619 0
wick ... £3,430 0 | T. Morgan ... 2,420 10
F. J. Coxhead ... 2,997 0 | A. B. Chirgwin ... 2,138 0

LONDON.—For clearing site and erecting a new factory, Bow, E. Mr. Spencer W. Grant, architect, 63, Finsbury-pavement, E.C. Quantities by Mr. C. W. Brooks:—

Holloway Bros. ... £4,495 | Minter ... £4,230
Neil ... 4,392 | Porter ... 4,121
Spencer ... 4,375

LONDON.—Accepted for the erection of dressing-rooms, lavatories, &c., at "The Elms," Coppermill-lane, Waltham-stow, for the East London Lands and Recreation Company. Mr. F. Towle, architect, Walthamstow:—

W. Lawrence, Waltham Abbey ... £650

LONDON.—For alterations, dilapidations, and fittings at the "Prince Arthur" public-house, Turner-road, Bow, E., for Mr. G. Sherwin. Mr. Fred. A. Ashton, architect, 177, Romford-road, Stratford, E.:—

Alterations, &c. Fittings. Total.
H. Wall and Co. ... £285 | ... £1,680
W. J. Maddison ... 839 | ... 1,608
A. E. Symes ... 920 | ... 1,660
J. and H. Cocks ... 860 | ... 1,597

LONDON.—For new shop-front and fittings to No. 37, Upper-street, Islington, for Mr. J. A. Haslop. Mr. Edmund J. Harrison, architect, 38, Bow-lane, Cheapside, E.C.:—

Lyons and Smith ... £270 0 | Thos. Sobey, Lamb's
Conduit-street ... 722 10 | * Accepted (amended tender).
Thos. Over ... 677 0

LONDON.—For the erection of shops and flats at Ardville-road, Brixton. Mr. E. C. Homer, architect, 35, Bucklersbury, E.C. Quantities by Mr. G. Silvester:—

Courtney and Fair- ... Holliday and Green-
bairn ... £7,677 | wood ... £7,177
Staines and Son ... 7,350 | Godson & Sons (omit-
ting stone cornice) 6,590
Hollingsworth ... 7,282 | * Accepted.

LONDON.—Accepted for building fireproof depository at Victoria Station, Pimlico, for Mr. Charles W. Hudson. Messrs. W. S. Cross and Kedwick, architects, 18, Outer Temple, Strand:—

H. B. Gammon ... £5,685

LONDON.—For completing Clifton-buildings, Brixton, for Mr. A. J. Sanderson. Mr. E. C. Homer, architect, 35, Bucklersbury, E.C.:—

Brown ... £6,666 | Courtney & Fairbairn £5,655
Minter ... 5,750 | * Accepted.

LONDON.—Accepted for additions to the receiving work-house, Bear-yard, Lincoln's Inn-fields, for the Guardians of the Strand Union. Messrs. W. S. Cross and Kedwick, architects, 18, Outer Temple, Strand:—

T. G. Sharphington, Nunhead ... £3,992

LONDON.—For alterations to premises in High-road, Lewisham, for Messrs. James Willing and Co., Limited. Messrs. W. S. Cross and Kedwick, architects, 18, Outer Temple, Strand:—

T. G. Sharphington ... £297 | Love and Co., Exeter-
J. Jarvis and Sons ... 756 | street (accepted) £640

LONDON.—For repairs, &c., at Fishmongers' and Poulterers' Almshouses, Wood Green, N. Mr. H. Dyball, architect, 35, Bucklersbury, E.C.:—

Irwin ... £607 | Willson ... £304
Webb and Sons ... 415 | Whitbread ... 285
J. Mills ... 370 | Willmott ... 240

LONDON.—For the erection of cottages, offices, caretaker's rooms, &c., at Neate-street, Camberwell, S.E., for Mr. E. G. Quinn. Mr. Arthur Garnar, architect, 66, Oakhurst-grove, East Dulwich, S.E.:—

Geo. Parker ... £1,700 | R. and E. Evans ... £1,598
Canning and Mullins ... 1,640 | Lawrence and Co. * 1,560
* Accepted.

MOTHERWELL (N.B.).—Accepted for the execution of sewerage works, for the Commissioners. Mr. Jas. M. Callum, engineer, Town Hall, Motherwell:—

Patrick McLaggart, Motherwell ... £1,394 19 9

NEWPORT (Mon.).—For the rebuilding of premises Nos. 121 and 122, Commercial-street, Newport, Mon., for Mr. Joseph Watkins. Messrs. Morgan and Hodge, architects and surveyors, Newport and Cardiff:—

J. Look ... £2,320 | D. Paritt ... £2,100
A. Hazell ... 2,315 | W. A. Linton ... 2,108
F. Westacott ... 2,315 | T. G. Diamond ... 2,160
J. Linton ... 2,300 | D. J. Davies ... 2,147
J. H. Reed ... 2,282 | J. Moore ... 2,124
Lawson and Co. ... 2,279 | G. F. Davies ... 2,095
V. C. Collier ... 2,250 | J. Davies * 2,045
J. Richards ... 2,200 | * Accepted.

NEWPORT (Mon.).—For the rebuilding of premises Nos. 29 and 30, Commercial-street, Newport, for Mrs. Coleman. Messrs. Morgan and Hodge, architects and surveyors, Newport and Cardiff:—

John Linton ... £2,395 | C. H. Reed ... £2,290
William Moore ... 2,370 | W. A. Linton ... 2,157
G. F. Davies ... 2,330 | David Jones ... 2,095
T. G. Diamond ... 2,295 | T. Westacott * 2,093
John Moore ... 2,249 | * Accepted.

SWINDON.—For the erection of a malt-house, Belmont Brewery, Swindon, for Messrs. Godwin Bros. Messrs. William Drew and Sons, architects, Swindon:—

F. J. Liddington ... £2,036 0 0 | J. Williams ... £493 0 0
W. A. Moulding ... 556 17 6 | J. Hatherley ... 497 0 0
Flewellling & Huck- ... A. J. Colborne,
son ... 555 0 0 | Swindon * 125 10 0
* Accepted.

TONBRIDGE.—For two shops and dwelling houses, Woodspring-road, for Mrs. Baldwin. Mr. Hy. Elwrig, architect:—

G. E. Eldridge ... £750

WHITSTABLE.—For the erection of an Early English gateway at Tankerton Castle, Whitstable, for Mr. T. E. Adams. Mr. A. A. Kemp, architect, Whitstable:—

Wood Bros. ... £210 | Amos T. Foad * 2500
T. Porter ... 770 | * Accepted.

WOLVERHAMPTON.—For the erection of new bottling stores, St. Peter's-square, for Mr. George Palmer. Mr. J. Mason, architect, 86, Darlington-street, Wolverhampton:—

T. and S. Ham ... £1,517 | B. Guest (accepted) £1,478
H. Gough ... 1,485

WESTWOOD (Notts.).—For the erection of a church, near Codnor Park, for the Building Committee. Mr. P. H. Currey, architect, Market-place, Derby. Quantities by the architect:—

T. Gill and Sons ... Estimate A. Estimate B.
Fisher Bros. ... £3,380 0 ... £2,405 0
H. Green and Sons ... 3,358 0 ... 2,389 0
H. J. Robinson ... 3,017 0 ... 2,125 0
W. Salt ... 2,808 0 ... 1,844 0
F. Lee, Alfreton * 2,512 15 ... 1,831 0
Estimate A for complete church.
Estimate B for church with tower omitted.
* Accepted.

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ARCHITECT'S JUNIOR ASSISTANT (18) seeks RE-ENGAGEMENT. Three years' experience. Inking-in drawings, tracing, &c.—Address, A. H., care of C. O. Blick, No. 76, Bridge-rd., Battersea.

TWO ARCHITECTS and SURVEYORS.—GENERAL ASSISTANT wants ENGAGEMENT. Five years' experience. Neat draughtsman. Competent to survey and take levels, and with good general knowledge.—S. E. T., 37, Queen's-square, Holborn, W.C.

ARCHITECT'S and SURVEYOR'S AS- SISTANT (young) REQUIRES RE-ENGAGEMENT; good draughtsman, well up in construction, details, quantities, &c.—23, Nelson-street, Leicester.

ARCHITECT'S ASSISTANT desires CHANGE. Provinces preferred. Good general draughtsman, and knowledge of surveying, levelling, and quantities. Six years' experience. Excellent references.—"Cornice," 47, Fleet-street, E.C.

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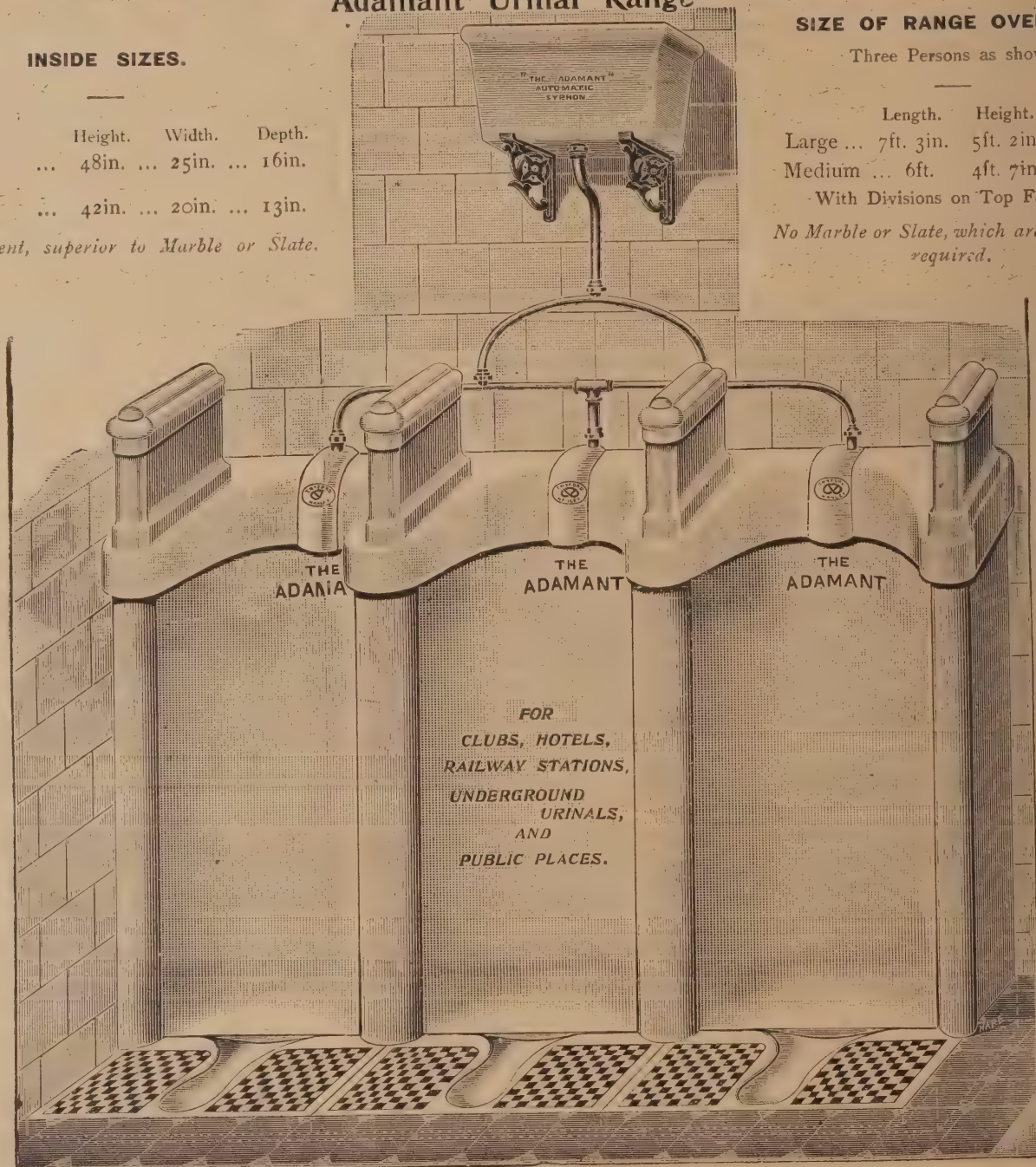
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An Architectural Causerie.

The Pedigree-Builder.

THERE are not wanting signs that the interest in heraldry has revived and been quickened again. In London we learn that our American cousins are prepared to pay almost anything for proof of blue blood in their veins, and as this carries with it the right of which the escutcheon is the outward and visible sign, there is work every day for the herald.

and thus was our history made before Caxton set up his press. It is possible to write a sufficiently complete family history if only the arms successively borne by the heads of the house can be shown, and, reversing the situation, the pedigree-builder may find sufficient in history to re-establish a name which has become ignominious by careless misuse. Instance Snooks, derived from Sevenoaks, *via* Sennoks, as Bret Harte explains to his friends. A handbook to this particular subject cannot, it is thought, be too elementary, and Mr. Wade's little volume deserves to be praised for the reason that it claims to be nothing more. The reader may have neither time nor inclination to give his whole mind to the subject, and the writer of this brief notice is with him, but one quickly discovers in particular cases whether the method pursued is the best, and the author of this may be sure that it would have been thrown aside in a moment if it had proved in the least disappointing; but, such as it is, it can be cordially recommended. The subject becomes more difficult as we proceed, but the student who is on the right way will

take it, and hath great need to be reformed, is the quartering of many marks in one shield, coat, or banner; for sithence it is true that such marks serve no other use but for a commander to lead by, or to be known by, it is of necessity that the same be apparent, fair, and easy to be discerned, so that the quartering of many of them together doth hinder the use for which they are provided."

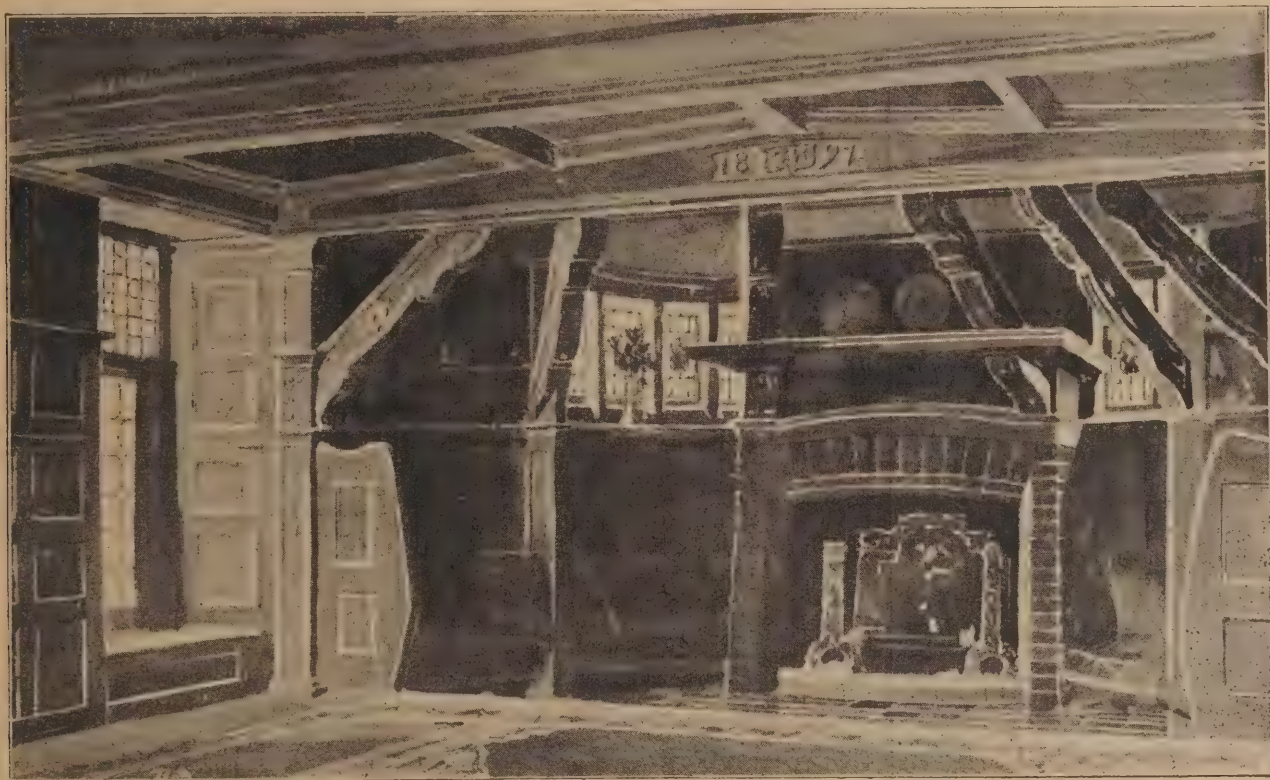
E. R.

Our Bridges.

WHEN Mr. W. S. Gilbert, in the course of a certain opera, took occasion to satirise the popular failing of dispraising the artistry of to-day to the glory of that of a day that is done, he castigated a very superficial and insincere form of reckless criticism. When he wrote the lines:—

Of course you must pooh pooh
Whatever's fresh and new,
And declare it crude and mean;
For Art stopped short
In the cultivated Court
Of the Empress Josephine.

He put those critics, who find decadence in



INGLE IN A BILLIARD ROOM. DESIGNED BY F. STUART MURRAY.

A little knowledge of this supremely decorative art is far from being a dangerous thing: and so far indeed as to be, in the writer's opinion, invaluable. It may be remembered, perhaps, that the employment of heraldic devices in Architecture was made the subject of a fascinating lecture by a member of the Art Workers' Guild not long ago, who was able, by means of the lantern, to illustrate, point by point, what he said, and greatly delighted his hearers. In the counties of Norfolk and Suffolk, where flint pertains to the soil, the courses of freestone, whether horizontal or vertical, give the distinction of style to the churches. The said counties, it will be remembered, were then the richest in England. So wealthy, indeed, that good Art could be properly paid for, and we find very often the surface relieved by panelled designs in which the founder's arms are conspicuous;

know better than one who is not, where to stop. When it comes to converting a shield into a complete geneological table and family history combined, the herald, it will be perceived, is well-nigh at his wit's end. What concerns us especially is that the design loses in dignity, and commands less respect as it gradually becomes more involved. The older he gets the longer is History's tail! Mr. Wade leaves off at this point as if as much had been said as could be expected from him. To go further is to fare worse, however, as we should presently come to such matters as cadency, differencing, dimidiation, impalement, quartering, agroupment, &c. The names are indicative of the devices employed by the herald, whose profession obliged him to move with the times, and to cram more and more into a naturally limited field. The author might here have quoted from Dugdale, born 1605, whose position as Royal Herald was gained by his works on this subject: "A thing 'that is amiss, as I

everything modern, somewhat out of countenance; but these words lose their satirical sting, and become a sober statement of fact when applied, for instance, to our Thames bridges. Generally speaking, it was at about that period in the first quarter of this dying century that the last bridge across the London Thames to claim any real architectural merit was built. One names, of course, in this connection, Waterloo Bridge. Most of the later examples are, indeed, either crude or mean; and the design for the new Vauxhall Bridge, presently to be begun, is just as commonplace as, for instance, those miracles of featureless utility, the new Putney and Wandsworth Bridges. We apparently lost the art of building a bridge with strikingly good architectural features when Rennie died. Since then, the engineer, with his iron and steel spans, has had the best opportunities, and we must needs suppose that it is because his services are not so often required (and his faculties in this direction

* "The Symbolisms of Heraldry." By W. Cecil Wade. London: George Redway. 2s. 6d.

therefore become somewhat dulled), that the architect of recent stone bridges has failed to produce anything better than a mere draughtsman's design. What puts a keener edge on one's regret in this direction is that many of the old bridges, demolished to make way for these featureless, if stronger structures, were so very picturesque. Londoners have not ceased to regret the vanished quaintness of old Putney Bridge, or that of old Wandsworth Bridge, both crazily timbered affairs, but so inspiring to the artist—and possibly not so crazy after all. Then there was the old bridge at Battersea, that made the reach just there the most delightful river "bit" near London. It went somewhere about five years ago, and the reach between Battersea and Chelsea is now vulgarised by two exceedingly pretentious suspension bridges, one of them tricked out with tawdry gilding and crested with gas lamps, the other a bleak and barren offence to the eye. The frankly hideous Lambeth Bridge even is better. It is, indeed, so hideous that, like the repulsiveness of a Japanese grotesque demon, it has a personality of its own rather winning upon one at last. But we have one really beautiful modern bridge in London that deserves every praise. Westminster Bridge is no unworthy neighbour of Barry's Gothic pile of the Palace of Westminster, whose Tudor tradition it carries across the river to the Westminster Bridge Road and the Albert Embankment, on which stand those flaunting red brick and Portland stone Italian Renaissance buildings of St. Thomas's Hospital, good in themselves, but in too violent contrast with the bridge and the Houses of Parliament. The light, four-centred arches of that fine bridge look absolutely perfect at half tide, when their piers are half submerged, and at all times that structure is an admirable object lesson in the artistic combined use of iron and stone. Beside it the heavier Gothic of Blackfriars Bridge is poor indeed, and that huge castellated structure by the Tower of London frankly impossible.

C. G. H.

A NEW isolation hospital at Isleworth, for the joint use of the boroughs of Richmond and Hounslow with Isleworth, has been opened.

THE competition for a design for new schools at Trowbridge has elicited sixty-seven sets of drawings which are to be on exhibition during the three concluding days of this week.

DIGGERS and delvers have been busy lately. Mr. Hogarth's English School of Archaeology at Athens has been doing good work in its excavations on the isle of Milo. The missing arms of Aphrodite, it is true, have not yet been found; but primitive fresco paintings of great value and interest have been brought to light, and another Acropolis has been discovered. Meanwhile the treasures hidden beneath British soil have not been neglected. At the Society of Antiquaries in Burlington House are to be seen the results of the latest excavations in Silchester. Half the old city (or nearly a hundred acres) has been now examined, and the arrangements made for warming the Roman houses with hot air, and other contrivances, are of the most interesting description, and suggest that our climate must have improved since the villas of Silchester were turned into fields of standing corn. Several large casks, one full of Old Falernian, betray other means employed by our invaders for keeping up their caloric, while the quantities of oyster shells found close at hand suggest that "natives" were thoroughly appreciated and treated to their appropriate accompaniments at table. The buried civilizations of Greece and Rome are gradually giving up their dead, in various quarters of the world that once was theirs. And the pathetic little relics that are brought to light show more and more how little we have changed since Silchester was guarded by the lictors, and Milo echoed to the songs of worshippers before its temple.

THE ARCHITECTURAL FREAK.

LEFT to itself, the architectural freak is not greatly gifted with a spirit of originality; as a general rule, it has to be built stone by stone on the lines of a plan suggested by some human eccentric, and even then it fails to bear the proud title of "freak," for it is usually known, in this country at all events, as "So-and-so's folly," but there are exceptions. In a certain town in Italy discovered by Cook there exists the "doyen" of architectural freaks, in the shape of the tower that has a distinct bias on one side—a bias achieved by the sole exertions of the structure itself without the intervention of human hands. This tower having achieved great popularity—few, we believe, of the casual visitors to Pisa, for that is the name of the place, have the strength of mind to leave the town without visiting and purchasing a photograph of

THIS GREATLY ADVERTISED ERECTION,

—other towers naturally essayed to eclipse it in leaning, but, notwithstanding that the "Falling Tower" of Caerphilly Castle, in Wales, throws its head, which is 77ft. from the ground, 11ft. out of the perpendicular as compared to the 14ft. bias of the 60 yards of Pisa's pet, the latter has never lost its hold on the public's affection, in which its foundations are deeply rooted, nor do we think it will loosen its grip, notwithstanding the efforts of Chesterfieldian champions on behalf of their crooked spire. This spire, which most closely resembles a bayonet as made in Germany after an encounter with a sardine tin undoubtedly possesses claims (says the Globe) to be known as the champion of Architectural freaks, and in making this assertion we are not influenced by any leaning on the grounds of nationality—the spire attends to that department—but because there is, unlike the subsidence of

THE FOUNDATION AT PISA,

no reasonable explanation of the spire's caprice. Optical illusions, lightning, and warped woodwork have all been suggested, but a first-class theory is still wanting. Had Phillip II. of Spain lived to-day the Escorial would be known as "Phillip's Folly," but, as he sojourned in this world in the sixteenth century, his contemporaries acknowledged that the building of the palace in the shape of a gridiron as a compliment to St. Lawrence, upon whose day, in the year 1557, he defeated the French at St. Quentin, was nothing short of a delicate attention and a prodigiously clever idea. There were, by the way, some vastly uncomfortable cells at their disposal had they said otherwise. This novel form of compliment is perpetuated in our country, it is alleged, in that charming example of Tudor Architecture known as

"CHARLECOTE HOUSE,"

the ground plan of which was built in the shape of an "E," in honour of Elizabeth Regina. When aerial navigation is an accomplished fact, this idea will probably be adopted for advertising in our great cities. To see "—'s Cocoa is the Best" neatly picked out in terraces, squares, and streets, would doubtless be as delightful and stimulating as the article advertised. If the little Northamptonshire village of Rushton were not situated in longitude 10°21' E., the travelling Britisher would visit it in crowds, and philanthropic societies would extensively advertise their personally-conducted trips thither; indeed, "a week in rural Rushton for £5" would be as familiar in our mouth as household words. Rushton, it should be explained, possesses one of the freakiest buildings in the wide world, in the shape of a triangular house erected some three centuries ago by a fervent Roman Catholic, Sir Thomas Tresham, who is supposed to have had the idea of typifying the Trinity in his design. There are three sides to the house, each 33½ft. in length, and in height it is three stories; three windows

grace each of the three sides, and six of them are in shape trefoils; naturally the panes of glass are triangular. From the meeting place of the roof of the three gables on each side rises a three-sided chimney, and through three holes that perforate the three sides the smoke escapes when there is any. Each of the gables bears a three-sided pyramid crowned by a trefoil, and each of the three Latin inscriptions gracing the sides contains thirty-three letters. The interior of the house is so arranged by the cutting off of corners that on each floor there are three-sided apartments. In very sooth, everything in this remarkable house is in threes, with the exception of the number 5555 carved over the doorway. Why these figures should appear there is a mystery, for in no circumstances will three go into it without a remainder. Another architectural freak having a religious significance is

JEZREEL'S TOWER AT CHATHAM,

built under the direction of one White, who, under the name of James Jerusha Jezreel, gathered together a numerous following who called themselves "Jezreelites," and who were to be immortal—at least, they were given to understand they were. Unfortunately, the founder of the sect died before the completion of the tower, which was built from plans supposed to have been received from the Heavenly Jerusalem to accommodate the 144,000 chosen. Some little time ago the property, upon which £40,000 had been expended, was put up to auction, but, notwithstanding the auctioneer's suggestion that it might be converted into a "brewery or a lunatic asylum," no sale was effected, though the breaking-up price was but £6300. In the castle grounds at Midford there stands a tower which has claims to be regarded as a bona-fide freak of the second class, inasmuch as its ground plan reveals the fact that it was erected in the shape of the ace of clubs. There is, of course, the obvious legend attached to the building, as well as a priori, to account for the strange shape adopted, but the erection cannot be regarded in the first flight of freaks, and would probably, in more senses than one, be looked down upon by such eminent examples as the crooked spire of Chesterfield and other naturally deformed Architecture. Among the many suggestions of features warranted to secure success in the Paris Exhibition of 1900 one of the most startling was the idea of erecting the

"WOMAN'S BUILDING"

in the shape of a woman's head; not an ordinary head either, but one that would be typical of feminine beauty. Whether the model obtained from a composite taken from the photographs of the most beautiful types of modern women would give a result that would secure votes of approval from 1 per cent. of the feminine beholders we do not know, but a plebiscite would be full of interest. The details of this proposed architectural freak are remarkable. We learn, for instance, that beneath the layer of thin wood which bears the complexion of the fair but exaggerated composite powerful electric lights will be arranged. The wood, we are given to understand, will be "of some variety that is not opaque," while the electric light will be of sufficient force to penetrate the complexion and give the latter a soft, translucent effect that will be decidedly charming at night. With regard to Juliet, Shakespeare wrote:

There lies more peril in thine eyes
Than twenty of their swords.

What he would have said had he lived to-day concerning the powerful electric arc-lights which were to illumine the orbs of the proposed Architectural freak we cannot conjecture, but we trust he would have altered the latter part of the quotation, or, saving his nationality, he might have found himself literally in the same box as his distinguished comrade—in a literary sense—M. Zola.

THE foundation stone has been laid in connection with the proposed restoration of Swinton Parish Church, which was destroyed by fire—with the exception of the tower—last March.



FRIEZE, IN KIOSK AT NAVAL EXHIBITION. DESIGNED BY F. STUART MURRAY. T. E. COLLCUTT, ARCHITECT.

Men Who Design.

MR. FRANK STUART MURRAY.

THERE is a tendency to prate of Architecture as "The Mother of the Arts," without recognising the relationship thus involved between the architect and every designer of the beautiful. For many years the architect has wrapped around himself a professional cloak of his own devising, which has had the effect of separating him from his fellow artists. Although this state of things is no longer extant to any marked degree, it still exists in the relationship between the architect and the decorative artist. It is difficult to realise how dependent the architect is upon the services of the decorator until one has been brought in contact with the personal work of the latter. Although the individuality of any artist, whether decorative or otherwise, is only interesting in so far as it effects the artist's work, yet, in proportion as this is the case, his personality is worthy of study and attention.

The subject of the present article, Mr. Frank Murray, is eminently interesting, not only as a decorative designer of a high order, but as a man whose intimate acquaintance with a large range of subjects, apparently extraneous to decorative art, gives to that art a breadth and a variety which is seldom found.

Through sumptuously furnished showrooms, past exquisite examples of vertu, and up quite a wonderful number of stairs, one at last arrives at the studio, which is at the top of Messrs. Waring's premises in Oxford Street. It is quite refreshing to inhale the atmosphere of Bohemia after the almost oppressive luxury suggested by the showrooms, and it is here that Mr. Frank Murray, who is the art director of this vast business, is to be found; it is here that he points out with an almost fatherly pride the various features of his creation.

"My life as a painter," Mr. Murray begins, "is really of little interest to the general public, therefore we will hurry over that portion which relates to my earlier history, in

order to dwell more particularly on the object which has animated me for the last few years. It seems to me my function, if I have one, is the creation of an artistic and practical decorative studio. To this I have devoted, and shall continue to devote, my untiring energy. I began life, of all things in the world, as a stockbroker; this, however, did not last very long, the infinite possibilities of making everything, even the smallest domestic article, beautiful, leading me to enter the studio of a firm of decorators. This, mind, was when I was quite a young man, and a studio in a decorative firm at that time was a studio only in name. I found an atmosphere of commercialism and an utter absence of Art appreciation, a combination between the spirit of the decorator and the draper's assistant. After some time at that most disheartening business I left, and determined to devote myself entirely to marine painting, particularly shipping. Therefore a large portion of my life has been spent in this way, executing commissions for the P. and O., The White Star Line, and other large shipping companies. But always I have had in my mind the disappointing effect of my early experience in the decorator's studio, and it was this which led me to accept Messrs. Waring's offer, two years ago, to direct the art section of their business. I accepted on the condition that I was allowed a perfectly free hand in the means I employed to further the object I had in view. I have not only had a free hand, but the greatest support and assistance in the formation of my studio from the heads of the firm. My ideal is a studio founded upon the principles which animated the Art of the sixteenth century, and I believe nothing could stand against it. In sixteenth century Applied Art you can find nothing really bad. Almost up to the end of the eighteenth century this state of things exists, then comes the decline and fall."

Mr. Murray's views on the commercial spirit which may be attributed to any studio directly connected with a business firm, are singularly helpful and interesting.

"During the last few years there has been a great revival in applied and decorative art, as distinct from the art of the picture painter. This is mainly attributable to the "Arts and Crafts" and "Art Workers' Guild," truly living societies. Yet such a lot of the charming work done and exhibited is either not suitable to practical requirements or else far

too costly for the average pocket. As long as Art is not brought within the exigency of commerce, any real movement towards a reformation of public taste is amateurish and dilettante. What is wanted is someone to stand at the parting of the ways of Commerce and Art, and it is precisely this position which I hope my *atelier* will occupy. This is, I am convinced, the only practical method of focussing the heterogeneous mass of artistic material at our disposal, and making it homogeneous.

"You ask me about 'style.' Well, I am not a bit of a stylist. At the same time, I have no doubt that an intimate knowledge of styles is as imperative to the decorative artist as to the architect. Style is the concrete expression of the manners, customs, conventions, and ideals of a period. I find the greatest possible difficulty in getting artists—and I have ever so many applicants—to realise the necessity of this foundation to their art. Hence I find it necessary to train young men, if I am to realise my ideal *atelier*. The system I adopt is not that of ordinary pupilage. To begin with, I take no premiums, but, if the parents of a boy can support him for three years, during that period he should spend his days studying under a most rigorous scheme. Every line he draws is with a practical object in view. Chairs, tables, fenders, from the best of the many beautiful examples at South Kensington and elsewhere. Every week the pupil submits his work to me, and it is freely criticised in the studio, suggestions, objections, and so forth being expended upon it. I have often kept a pupil for weeks drawing nothing but sections of mouldings; after he has drawn several hundreds, he will find that they divide themselves into two classes, the mediæval and the classical. As he continues, the pupil will gradually see the moving vital spirit which underlies these classes, and so, catching this spirit, he will become not a mere copyist, but an artist fully qualified to take his place in the studio, and help forward the work.

The beautiful work which is being executed in the studio is the best proof of the system which Mr. Murray has adopted. Mr. Murray, who is a member of the Arts and Crafts Society and the Art Workers' Guild, is a constant exhibitor at the Royal Academy; for seventeen years he has been represented on the walls of Burlington House, this year's exhibition being no exception to the rule.



FRIEZE IN KIOSK AT NAVAL EXHIBITION. DESIGNED BY F. STUART MURRAY. T. E. COLLCUTT, ARCHITECT.

POMPEII.

By ANATOLE FRANCE.

(Translated from the Figaro.)

AFTER having climbed by a dusty road a hill covered with olive trees in a conveyance which was as rustic as the lyre of Homer, we alighted before an inn situate about two hundred steps from Pompeii. The inn was shaded by some acacias, and was called by some ancient name; you are sure of meeting

appeared to be quite ripe and well-developed, and, that being the case, the great event could not have occurred earlier than the end of the autumn; thus the triumphal shrub decided the question in favour of those who held out for November. I have related this little incident with the care of an inquisitive traveller. Some savants are, however, still doubtful, and I must say I have questioned no one in Pompeii about it. I have only disturbed the little grey lizards which bask in the sun upon those ancient walls.

In this solitude one experiences those strange impressions, impressions which magic should produce, that is, if magic were truly

Between the pilasters they traced landscapes, vines, fountains, wreaths, and birds.

Upon a dark background, giving a void effect, they suspended airy figures of dancers. In short, they designed with a knowledge often tolerable, yet with much taste and ingenuity, mythological scenes, great compositions proceeding from a known original, which they modified according to their suitability or caprice. They had books of designs and subjects, from which the well-to-do Pompeian generally chose by preference voluptuous subjects, and under his portico were portrayed Achilles, and Briseis, Apollo and Daphne, the awakening of Ariadne, the faun unveiling a



"WAR."

there a good many travellers, men of tall stature, of unyielding gait, square heads, and of light complexion, attributes typical of the German professor, who, following the example of Faust, come to conquer Science and Beauty. Leaving the inn, and following the ruin of the Roman wall, we enter Pompeii by the Stabian gate, where a turnstile is established, and with the same step which carries you through it, you have crossed the threshold of eighteen centuries, and find yourself in a city just as it appeared in ancient times.

The sovereign dignity floats yet o'er its deserted bed.

It is generally known that Pompeii was buried with Herculaneum, Stabies Oploutus, and Retinus, under pumice stone, boiling water, and cinders which were vomited by Vesuvius in the first year of the reign of Titus (A.D. 79). But the archaeologists were not agreed as to the month in which the eruption took place. Some contended that it was in August, others November. A bay tree, however, appeared, which ended the dispute. It grew in the town during the time of the Cæsars upon the boulevard near the Stabian gate; it appeared on the right hand

the art of evocation; one feels them whilst traversing those straight streets with irregular flagstones, in which the Roman chariots have made deep ruts, and along those painted houses, through the door frames of which you can see columns of stucco, marble basins, and painted walls. But although these houses have lost their roofs, yet they still seem to be awaiting their ancient occupiers. The word SALVE, which is traced in the mosaic of the threshold, seems yet to promise a favourable reception. The aspect of those beautiful halls seems scarcely to have changed at all. They were always open to the sky, and surrounded by a portico, over which was extended a veil. Water once flowed in the fountains with a cool murmuring, but now has long ceased to babble. Bronze chairs, marble tables, lamps, candeliers, busts, and statues have all been taken away with the best of the mural paintings; yet the charm is not broken, the Venus of Pompeii smiles still in her own city. One can imagine that she is sleeping, and that she is not dead. There she is a peaceful Venus, a Venus of the crossways and of the gardens. You see her many times represented in the frescoes, seated upon a stone and fishing with a line. The frescoes of Pompeii are delicious; they were, however, for the most part hastily executed by

sleeping nymph, truly a spiritual and charming idea; and the toilette of Hermaphrodite, which is a composition in Oriental style. As they had special apartments for their love affairs, these apartments were decorated with elaborate tableaux. The Pompeian was not chaste; neither his gods nor yet his climate induced him to be. But if he were a disciple of the Greeks, he had in all things a sense of propriety, and we must recognise in him the delicate taste with which he chose the necessities of life, in which relation he was by far our superior. I should regard as an honest man, the wine merchant who had the Faun and the mosaic of Alexander in his residence, in which reigned a becoming grace and refinement. As regards the possessor of those exquisite reliefs designed upon marble, now in the Naples museum, I should proclaim him happy, that is if he knew the value of what he possessed, for in his day they must have been already antique and of the most beautiful antique—a fragment in the pure style of Polygnotus.

I have a great respect also for the philosopher who, in this city where few studied, wrote a few short treatises which have been found in a state of carbon. He was a disciple of Epicurus, and if perchance he conformed his



"PEACE."

DESIGN FOR MOSAICS OF ANCIENT AND MODERN SHIPPING. BY F. S. MURRAY.

as you entered. This bay tree was buried alive under the shroud of mud which enveloped the five towns. As the bodies of men and animals which had fallen under this sepulchral rain, and as the woman who came with her two companions to throw themselves at its feet, so the beautiful tree was buried and became dust, leaving the impression of its trunk, its foliage, and its bays in its hardened ashes. It was only a few years ago that a hole so formed was revealed by a blow of a pickaxe, and in accordance with an ingenious method which has been in use now for some time, plaster was run into the hole, and thus a cast of the bay tree was obtained. It was recognised as belonging to that species which is now used for culinary purposes. The bays

craftsmen, doubtless very ordinary, in the short space of sixteen years, comprised between the earthquake of the year 63, which ruined the town, and the eruption of 79 which buried it. Art sustained a great loss then; some of the most ancient decorations, however, have been recovered. They are very beautiful. They are conceived in that great style which is called the candelabrum style, because the principal motives reproduced in it were those flowered stems of bronze which the Greek artists were so well able in throwing out in the form of a graceful and majestic branch which served to carry the burning torch. The painters who, after the year 63, came with their rolls of tracing to decorate the houses restored from their ruins, had an exquisite sense of ornament.

life to his doctrine, he had great contempt for Venus, the Venus with black tresses, so much adored by the Pompeians.

The Epicureans preached abstinence from all carnal pleasures, albeit the reasons for which doctrine were much too deep for the comprehension of the commoner people. This sage, I should imagine, was very isolated—a total stranger in that clamorous and wanton throng.

Still there were to be found here and there a few cultivated minds in this little town where Cicero once lived, but they were very rare, isolated for the most part, and concealed in their lovely gardens under the shade of the terebinth trees, or else shut up in a wretched little room and surrounded by manuscripts.

Those people who prevailed in the streets were necessarily of the commoner classes, such as merchants, clerks, lawyers, doctors, artisans, slaves, soldiers, sailors, gladiators, panders, courtisans, and all that filthy scum that the pirate-infested sea deposited upon the shores of Campania and in the maritime towns.

Pompeii was a gay city, but it was, at the same time, a business centre. Jocundus the banker devoted himself to many profitable transactions, the details of which are known, for his books have been found. In the courts of justice they argued tremendously, and the walls thereof were literally hidden by the legal notices which were affixed to them; a poet once declared himself astonished that they did not fall down, so terrible was the cavilling and wrangling which was carried on within. Public life was very active, and candidates for the municipal offices daubed the walls with their names, which were written in a large, bold handwriting, a custom still in vogue in some of the towns in Italy.

Their chief place of amusement was the

The house owners here who, thinking that all capital should be production, opened the ground floors of their houses as shops, which they let out to traders; in fact, notices of shops "to let" have actually been found. Among all those shops now brought to light there is not a single library, but as regards taverns and drinking shops there are many, one of these was seen which had for a sign two men carrying a pitcher.

The Pompeian tavern, with its marble counter, was very like the "antica osteria," which one meets with in the alleys in Naples; both food and drink were obtainable there.

Upon the wall plaster of one of these taverns a design was scratched (probably the work of some belated idler), in which one can see, among other things, a customer calling to a waiter and saying: "Give me a little fresh water." Like the modern Neapolitan, the Pompeian of old did not despise water, but at the same time he would not pay for it as he would for wine; one evidently discontented tippler wrote upon the wall of one tavern this

of cooking pervaded the air, whilst from amidst the crowds of fruitsellers arose the cries of the muleteers and the laughing of naked children. The quarrels of the soldiers, of the sailors and of the gladiators disturbed the night. Actors, prostitutes, vagabonds, and robbers there fulfilled their various professions. Thus I pity Syricus, and though I do not sympathise with him, yet his unfortunate condition touches me. I will tell it you.

Syricus was a merchant, probably a cloth merchant, for in his safe have been found several samples of stuffs. He was naturally a grasping character, and thought of little other than making money. In his house, which is situated near the Stabian Gate, he had not, as was the custom, inscribed upon the paving of the vestibule a favourable motto, one of good augury to the addressee of his customers; but instead thereof, the mosaic of the threshold carried this uncouth wish: "A welcome to profit." This was rendered again in an incorrect but popular form of Latin. Syricus was very wealthy, and his house, judging by



"THE SCIENCES." DESIGN FOR A FRIEZE. BY F. STUART MURRAY.

amphitheatre, in which the gladiators contended with the wild beasts. Eating and drinking, loving, laughing, quarrelling, and constant fear of the evil eye was the order of the day. For the purpose of conjuring the evil influences they carried charms, also certain emblems were placed on the doors and upon the furniture. One citizen of Pompeii, a tanner by trade, had a death's head, in mosaic, upon the table of his dining room; its purpose was to bring him good luck.

In the plate given last year to the Louvre there are two cups, once the property of a wealthy Campanian, one Trimalkion of Vesuvius. These cups are ornamented with two skeletons in high relief. The Neapolitans of to-day even carry little skulls of red coral in their collection of charm trinkets. Just as Trimalkion of old did in contemplating his articulated skeletons, so the tanner of Pompeii had a subject for meditation whilst taking his supper in the rapid flight of his days; and he would be able to conclude, according to his disposition, whether he should hasten to enjoy himself, or whether he must despise ephemeral pleasure.

imprecation: "May the gods visit thy sins upon thine own head thou that sellest water, having thyself drunk wine." The man of the lower classes in Pompeii ate his meals in the street, in fact, he lived out of doors, and facts tend to prove that they were not ashamed of any of the functions of life; he was of a gay disposition, imaginative, and not at all too coarse in his speech. One reads in places erotic inscriptions, which are delicately worded; one amorous individual has written upon a wall in Greek the words, "Thou, my life and my soul," and we know from Invenal that these are significant words. In the house of Primus, he who left his dog chained up during that terrible hail of cinders and stones, a hand had written under the portico of the garden these lines: "Who can hinder love? Who shall restrain the lover?" Then comes this imprecation: "Let him die a double death who would impede the course of love."

One must imagine those alleys which now are deserted and silent as noisy and animated, like the little lanes or side streets in Genoa, Naples, or Palermo. In the morning women could be seen combing their hair, and a smell

what now remains of it, was very sumptuous. He shared it with a relative, each having his particular entrance and separate apartments. In those of Syricus, a few and very pleasing frescoes are to be seen; this uncouth and unlettered man had the Muses depicted upon the walls of his parlour. But this fine building overlooked a filthy lane—a lane frequented by the lowest of the low. On the opposite side of the way from Syricus was the tavern of Sittius, with an Elephant for a sign, it was a wretched place; then adjoining him extended a large hostelry of filthy aspect. But this was not all, for on the left hand lived a matron with her bevy of complaisant maidens, and I assure you that in Campania during the time of the Emperors the windows of the house were never closed. One poor creature, a humble competitor, occupied on one side a chamber so small that it was necessary to make a hole in the wall for the bed. In this alley abounded, as one can imagine, rakes and vagabonds. Here in this fair Encolpe, so full of literature, there prowled at all hours representatives of the species, the parasite, the robber, the debauchee, and the sacrilegist, who stole from the inns the

coats of travellers, and who visited the ship of Isis which was moored in the harbour, and even dared to rob the goddess of her embroidered robe and her silver sistrum; in fact, one must have traversed at night some back street in Old Naples before the least idea can be formed of the world that lived there enjoying a liberty unknown to the austere people of the West. Whilst Syricus busied himself with his accounts at night, or whilst resting himself on his bed, drunkards rolled about outside, stumbling over fragments of broken pottery, and howling; ostlers, soldiers, gladiators, sorcerers, courtesans, and slaves, who quarrelled in the low inns and other degraded places, felling one another with candlesticks and fighting with smoking spits, altogether making a frightful uproar. Poor Syricus, his ears all but broken by the din and his safe broken into by thieves, had painted on the wall outside two serpents encircling an altar, which sign was according to the common belief efficacious in exorcising the evil influence and perils with which he was surrounded. Over the serpent was written this inscription, now effaced, although it was easily read at the time of its discovery: "Tarry not here, move on scoundrels." There is no knowing what effect it had, but it is most probable that this vile crowd still shrieked beneath those serpents, not caring much for the written injunction, and that this wretched street became quiet only under the cinders of Vesuvius which buried it.

The reader will reproach us, perhaps, for having remained unreasonably long in this low quarter. It is at the other extremity of the town, at the end of the Rue de Stabies near to the gate of Vesuvius, where the excavations are being carried on. For a long time led without order, they are now conducted with method. The frescoes are all being left in place, under the protection of a roof or else covered with glass. This has been done in the "Casa Nuova," recently exhumed, and which is now rendered to us with all its furniture and the adorable friezes of Love's craftsmen. At the entrance of this house is a painting, which really should be taken to a private museum and even then should be covered by a screen; all that I can say of it is that it represents a man, who, holding a balance, seems to express this idea—that pleasure is dearly bought. That is another house which one cannot call respectable. Rich and poor, craftsmen and merchants, soldiers, conjurors, temples, palaces, hovels, sewers, all these put together make a city, that is to say, an event—a pathetic event—a great human reality, and in the abysses of the past, a sacred reality.

A NEW Wesleyan Methodist chapel was lately opened at Chelmsford.

The foundation stone of new schools at Neath was laid a few days ago. The contract price of the new building is £5400.

The Cleethorpes Urban District Council has determined to widen the Grimsby Road. The surveyor has been instructed to prepare plans and submit an estimate for the work.

A LOCAL GOVERNMENT BOARD inquiry into the application of the Devonport Town Council for power to borrow £9250, for the purchase of land as a site for the erection of municipal buildings, was held a few days ago.

BUILDING operations have been in full swing at Skegness during the past winter. Two fine terraces have been nearly completed, and a Roman Catholic church, a Primitive Methodist chapel, and other buildings are now in course of erection. The Pier Saloon is being enlarged, and other improvements are being effected.

ACCORDING to the annual report of Mr. Vice-Consul Keogh, the years 1896 and 1897 have been prosperous and successful for the principality of Monaco. Building has been unusually active. Land has become scarce and expensive and at Monte Carlo there is difficulty in finding any. An electric tramway has been laid from near Monaco railway station to the frontier at St. Roman, passing through Monte Carlo. This is a link in the proposed electric tram line from Cagnes (a short distance on the Cannes side of Nice) to Mentone.

GREAT ART WORKERS OF THE CENTURIES.

QUENTIN MATSYS: ARTIST IN WROUGHT IRON.

ALMOST as soon as the early members of the human race learned to utilise metals for the fabrication of tools and weapons, they also applied them to ornamental uses. At first this was generally in the direction of personal ornaments, and the precious metals, gold and silver, were the most prized materials. But it is certain that the early Egyptians and Chaldeans, and probably also the first Greeks, covered some of the walls of their temples and palaces with tablets and bronze more or less ornamental. The most useful of all the metals did not come into general use in the civilised world until much later. Lord Macaulay, in his fine lay of "Horatius," says of the advance of the Tuscan army as seen from the walls of Rome by the terrified citizens:

Now through the gloom appears,
Far to left, and far to right,
In broken beams of dark blue light,
The long array of helmets bright,
The long array of spears.

With all respect to the poet, no "dark blue light" would have been visible, for the helmets and spearheads of both Etruscans and Romans at that remote date were of bronze, and the Romans only learned the use of iron or steel swords from the Goths of Spain long subsequently. Doubtless from the "masters of the world" their various dependencies became acquainted with iron. We know, at least, that at, or immediately posterior to, the Roman Conquest, both iron and steel were in general use in England for arms, armour, tools, and various architectural adjuncts. It is here that we begin to find the commencement of ornamental wrought-iron work. The Gothic builders of the Middle Ages desired to make the house of the Lord which they reared beautiful throughout, and spared no labour to accomplish their object. It was not alone that every part of the edifice, from the great porch to the slender spire externally, or from the grand chancel arch to the font internally, should be miracles of the most beautiful and most delicate stone carving, but all the ironwork—hinge and lock, bolt and bar, must be equally wrought into decorative beauty. The production of work of an artistic or ornamental character in wrought or hammered iron is a difficult process, which requires great technical skill, and the most cursory consideration of the subject will show why this is the case. The sculptor and carver, working upon marble or wood, the potter manipulating plastic clay, or the artist or decorator laying on pigment or media, can each and all work with as much deliberation as suit their views or purposes. If the sculptor thinks that the cheeks of his marble nymph have not the proper curvature, he can

CHISEL AWAY

a little more carefully and at his ease; but the iron worker must emphatically "strike while the iron is hot." He must give or impart to the metal an ornamental form while it is still at a red or even white heat, and hence his manipulation must be rapid. Nevertheless, if he be skilful, the results obtained are as wonderful as they are beautiful. As connected with the *métier* of the subject of this paper, I may mention that at the South Kensington Museum there is a fine specimen of German or Flemish work. It is a window grating, and probably contemporaneous with Matsys, if not actually his work. Another specimen is a wrought-iron open church screen of English workmanship of the period, and an excellent example of the capabilities of the material; and another excellent example of the effective employment of wrought-iron in an exceedingly simple manner is a link holder from Siena, which is also about contemporaneous with Quentin Matsys. This is an excellent example of spirited design and adequate execution in iron, the best point about

it being the ready manner in which a grotesque quasi-animal form is worked out of little more than a mere bar of metal, with forcible expression, though without any attempt at realism. But to turn now to the main object of this paper—Quentin Matsys. There are such conflicting statements concerning the "famous blacksmith of Antwerp" that the date and place of his birth even cannot be positively stated. For more than three hundred years a feud has raged between Louvain and Antwerp, each claiming him as a son. For Louvain the most formidable champion has been M. Edward van Even, who, in poring over the registers of the city, found that in 1440 Arnold and Nicholas Matsys were allowed in Louvain the immunities of burghers, and accordingly claims that Quentin is one of their descendants, as in the said city there was living from 1469 to 1530 a famous locksmith and clockmaker named Matsys. Also that Gurchardin—who, however, is oftentimes regarded as of doubtful authority—in his list of contemporary painters mentions that Quentin Matsys was born in the old capital of Brabant. Then M. de Burlrose, who examined with patient care the musty archives of the Cathedral, discovered that from 1456 to 1466 there lived one Jean Matsys in Antwerp, who wrought for the Cathedral many works in iron, and was besides entrusted with

THE FAMOUS CLOCK OF ST. JACQUES,

and that after his death, attributed to the year 1467, his widow was paid money due on the work of her husband. There is also a suggestion that the Matsys of Louvain is confounded with this one. It is considered strange there should be two of the same name pursuing identical occupations at the same time in places so near to each other. In the work of the late M. Alfred Michiels, "Rubens and the Antwerp School," published in 1854, the discussion is resumed, and M. Michiels agrees with M. de Burlrose in his conclusions. Be it as it may, though the date and place of his birth are in doubt, Matsys achieved his fame at Antwerp, and will always be associated with the quaint Flemish town, where he died. The spelling of his name is also in dispute; his son wrote it Massis, but as nearly as can be deciphered on his "Descent from the Cross," in the Louvre, he signed it Matsys. Everyone who visits Antwerp goes, of course, to the Cathedral, and if they enter there by the principal gate, the nearest way to it is through the "Place aux Gants," in the centre of which stands one of the sights of the city—the famous well. Of the many who daily draw water from it, probably few ever think of its beauty; but to the tourist and connoisseur it possesses great attractions. This well cover is supposed to have had its origin in a bet with a fellow workman that out of a single piece of iron, and with one hammer, he would fashion the well-cover—and he won the bet, being then, though called the master in iron, barely of age. Furthermore, the romance lovers tell us that, on account of his love affair with Adelaide van Wylt—whose father, a painter, regarding a blacksmith as unworthy to be his son-in-law, refused Matsys as a suitor for his daughter—the rejected lover, abandoning the trade in which he stood so high, vowed to become an artist, and travelled through Germany and even England, working at his trade only to obtain the wherewithal

TO PROSECUTE HIS ART STUDIES,

and at last he returned to Antwerp, where, as his merits were speedily recognised, the stern father yielded, and Matsys married his lady love, though the people still persisted in calling him the blacksmith. If this tale of his travel is true, it must have been then that he wrought in England the iron tomb which covers the grave of Edward IV. in the Chapel of Windsor Castle, and the incasing of the baptismal fonts in St. Peter's, at Louvain, both of which are attributed to him. In the wall of the Cathedral, by the side of the main entrance, is a stone to his memory, carved with a skull and cross-bones, and bearing this motto: "Corumbialis amor de muleibre fecit apellem." W. N. B.

RENAISSANCE WOODWORK IN ENGLAND.*

BY J. HUNGERFORD POLLEN.

(Continued from page 300.)

THE most imposing features of the houses of the seventeenth century are the great halls, with their massive tables and benches, in which the hospitalities of the owners were dispensed, and pageants, and dances prepared for the entertainment of the neighbours. The halls generally rise through the first floor, and communication across them on that floor is secured by a gallery, closed with lattices or concealed by the upper ornaments of the great screens of carved oak which divide the hall from outer entrances and from the offices. The fires were no longer made in the middle of the room, as at Westminster School, at Penshurst, and a few other places, but in large fireplaces, with imposing fronts carved with armorial bearings and other decorations. Telamons, human figures serving as piers or brackets, are favourite subjects; burly and massive figures, boldly and spiritedly carved, look down upon you from these structures, and seem to welcome the traveller to their abode; family portraits (often bad enough) cover parts of the walls.

Family trophies, regimental colours, arms that have belonged to sons and ancestors long dead, adorn these walls, to say nothing of notable stag horns, rare birds, stuffed phenomenal fish caught on the property, and the like. The halls represent the families that have lived and died in the old homes. New men who build or buy such places in our day are said to buy rows of sham ancestors and trophies of arms arranged in stars to replace genuine relics of this kind.

Next to screens and fireplaces we may name the roofs. Many halls—those of Hampton Court, of Christ Church, Oxford, for example—are roofed in the old, mediæval manner; less gracefully put together, and with the decorated parts heavier and loaded. Still, these roofs are the old mediæval roof revived, and are dignified and impressive structures. I doubt whether in the seventeenth century any country except our own retained them.

* A paper read before the Applied Art Section of the Society of Arts.

The panelling of walls was simple, but in many cases retained the old "linen" pattern, perpendicular mouldings representing napkins folded in plaits. Some of the panelling in the South Kensington Museum is set off by carved pilasters and by a frieze carved with figures of the seasons or genii, &c. But the size of the panels is ruled by the average width of the planks of heart wood from which they are cut.

The building of these roomy country "mansions" continued till the time of the Civil War. It was from the owners, with their servants and tenants, that the Royal armies were recruited.

It is time now to turn to an architect who did much to bring what I have called the academic Renaissance into fashion, and Renaissance woodwork into line with it. I do not call the early changes introduced by Henry and Elizabeth, the early modest adoption of Corinthian columns and other antique ornamental detail, academic. It did not take its origin from written rules, mechanically worked out in treatises and books, but by following living men who had been trained in older traditions, and superadding to them what impressed them in the old temples, triumphal arches, and ruined palaces of Rome. They introduce sculptured children and animals into their work, always with a right feeling of "propriety," the "to prepon," the really "becoming." The later Renaissance was the product of learned men who had analysed the huge temples and ruins of Italy and reduced them to rules; as academies of Art in our day manufacture artists by rules. Rules are good as tests required to measure and test the work of a painter or an architect, but they will not make either. *Poeta nascitur non fit.*

Inigo Jones, whose works were of the complete full blown classic kind, was himself an artist of great power. He was born in 1573, and, as some say, was apprenticed to a joiner. At an early age he travelled to Venice and other places, built a palace at Leghorn, and another for the King of Denmark, and brought sculpture and other works of Art for the Earls of Pembroke, Arundel, and Danvers. He flourished during the reigns of James I. and Charles I. His great design was for a new Royal Whitehall, the old palace of Wolsey having been burnt in 1618. All that was built by Jones was the banquetting house opposite the Horse Guards. More than one set of designs for the entire palace remain and have been engraved.

Jones became attached to the Court of James I., some time before 1610 as the inventor and contriver of masks, theatre scenery, and general designer for the Court. There is a King's Thames barge at South Kensington,

possibly of his design. He seems to have been a devoted admirer and follower of Palladio. All his Architecture is simple and massive. Wilton House, Salisbury; Ashburton House, Westminster; Brympton, Somerset (the front), and many other houses are existing examples. His woodwork is suited to the massive character of his exteriors. Some of his panelling has more design in it than that of Wren, who came after him. His inventiveness, as his Majesty's contriver, was of service to his woodwork. Shifting scenes, of which he had learned the art in Italy, are said to have been introduced into this country by him. His more important fireplace fronts were of marble, but a large number of them were of wood, the composition and ornamentation being similar in design to his marble ones. There are certain decorative features very frequently seen on these objects; for instance, groups of three long acanthus buds, looking rather like three fishes, which have seemed to me a sort of Jones signature, whether invented by him, or borrowed from Italy.

Another favourite moulding of Jones's is the square fret, and another the curve rolling over like the waves of the sea, called the Vitruvian roll, and another of his decorations in wood is the swag or hanging garland. We find this last on fireplace mouldings and at the flanks of picture frames where, in either instance, the angles break out, commonly called Vandyck frames, because often used for Vandyck portraits. Jones used Telamon figures, i.e., figures as members or apparent members of support, in his chimney fronts. This kind of carving became a fashion, sometimes facing the spectator, sometimes sideways in profile. Later architects, Kent and others, made use of these various decorative features in the woodwork of London houses. Examples from Wood Street, and the demolitions of Carey Street, &c., may be seen in the South Kensington Museum and in furniture shops.

Altogether it must be acknowledged that Jones, if he did much (as I think he did) to academicise Renaissance interiors as well as exteriors, he did it with a certain nobility, and that in the woodwork interest he stamped a lasting impression on his country.

Next to Jones we must rank Sir Christopher Wren, an admirable constructor, and not wanting in the capacity of decorative composition in his Architecture. He is said never to have travelled beyond the four seas, and that this fact was a professional disadvantage. I do not altogether admit that latter view. He might have lost as much as he would have gained by the variety of fashions he would have seen in Italy and France.

Wren's woodwork may be seen in the stall work of St. Paul's Cathedral and some collegiate chapels. There are details at South Kensington from the old stalls at Eton College. His stalls are covered by a continuous flat roof or shelf supported by brackets beautifully carved with a canthus in graceful rolls. His panelling in parish churches can be seen in London City churches. Many of them were rebuilt by Wren after the Great Fire.

For house interiors he may be well studied in Greenwich and Hampton Court. His panelling is on a large scale, a set of dado panels below, and of tall panels, 8ft., 9ft., or more, by about 3ft. The mouldings are large in proportion. At Hampton Court occasional swags of Grinling Gibbons's carving in lime-wood are introduced. These interior fittings are quiet, dignified, more "proper" than interesting. The windows of Hampton Court are of the Dutch kind, tall sash windows; useful, but wanting in any kind of decorative effect. Wren had many imitators. His Architecture, under other hands, devoid of the decorative capacities of Wren, has resulted in the duller of the streets and squares of Georgian London. Wren panels, staircase balustrades, &c., survive in hundreds of the houses built after his death.

Next we must notice Sir William Chambers, an architect of the middle of the century. He did travel in many countries, and brought back his Chinese notions, which he carried out in woodwork: Chinese summer-houses



HALL, AUDLEY END, ESSEX.

and garden trellises which he had carved among the ornament of woodwork, looking-glass frames, &c. His treatise on "Civil Architecture" is of value in so far as it is academic in character. It describes the details of classic woodwork ornamentation—dadoes, bases, wall divisions, and the different members of entablatures, with some explanation of the typical meaning of classic mouldings. His frets and trellises, of Chinese origin, are worth studying and remembering. There are rooms in old houses of 150 years ago prepared with



BRACKET FROM ETON COLLEGE.

the admirable wall-papers of the China of the days in which these borders of trellises and fretwork are effectively employed. Sir William built the present Somerset House. He found the old rooms part, of the dower house of Queen Henrietta Maria, furnished completely, just as she had left them.

The last master of internal woodwork decoration whom I will notice is Adam, or, rather, the two brothers, Robert and James, for they seem to have practised as partners. We are assembled this evening in one of their houses, built over what was once Durham Yard, part of the premises of the Bishop of Durham's London house. The Adam houses are all round us here. Certain features are observable on their exteriors—oval medallions, pilasters, covered with rolling scrolls in relief. Old Northumberland House at Charing Cross, now destroyed, Sion House, several Portland Place houses, Lansdowne House, and others, are or were good illustrations of Adam ornamentation in wood and plaster. His mouldings are delicate, sharply cut, somewhat wiry and dry and cramped when compared with the flowing lines of Wren's wood-carving; still, not without refinement and distinction. The Adams undertook the entire decoration of the houses they erected; and of the furniture suited to them. This may be seen in their published views of the interiors of Sion House, Derby House, and others. They seem to have employed Sheraton and his imitators largely for their furniture designs.

Here I will bring these remarks to a conclusion. I have noticed what I call the academic system of architectural decoration in wood as in stone.

Neither the figure carving nor the scroll work of these seventeenth century English carvers can compare with Italian sculpture, if we refer it to the work of the purest periods, or to that of famous artists. But famous artists are very rare creatures, and carvers who can do no more than copy and attain neatness and a smooth surface, may be in some sense correct, but racy or interesting never.

ROMAN REMAINS.

ANTIQUARIAN VISIT IN YORKSHIRE.

SEVERAL members of the Bradford Scientific Association recently paid a visit to Boroughbridge and Aldborough, places of considerable antiquity. Aldborough, as its name would indicate, boasts a very heavy history; its records dip deep into the Roman period. The first objects visited were the huge monoliths known as the "Devil's Arrows" at Boroughbridge. These remarkable obelisks appear to belong to that class of menhirs or pillar stones, sometimes called Druidical monuments, but of more ancient date than Druidism itself, similar erections being among the earliest known memorials of the primitive inhabitants of Western Europe. They are three in number, and range from 18ft. to 22½ft. in height above the surface of the ground, to which must be added from 5ft. to 7ft. of stone embedded beneath the soil.

THE PILLARS

are computed to weigh from thirty to thirty-six tons each. At one time there was a fourth stone, but it was hewn down, and a portion of it was used as the foundation of a neighbouring bridge. The remaining obelisks are all of the millstone-grit formation, which does not exist nearer than Plumpton Rocks, eleven miles distant, whence it is supposed these columns were procured. The Devil's Arrows surpass in magnitude the average of the stones at Stonehenge, Salisbury Plain, which were conveyed a distance of sixteen miles. The "arrows," however, are surpassed in height by the Rudston monolith—an isolated pillar standing in the churchyard at Rudston, in the East Riding, which measures 25ft. above ground. That stone has been traced for nearly 16ft. below the present surface, making a total height of 40ft. The party next went forward to Aldborough, about three quarters of a mile away. The origin of Aldborough is lost in antiquity. That it was a fortified place prior to the Roman occupation of Britain is certain, for it is so described by Ptolemy, who ascribes to it the distinction of being the

CHIEF CENTRE OF THE BRIGANTES,

who gave much trouble to the legionaries of Cæsar. Remains of the Brigantian rampart, discovered some years ago, contained numerous relics of the pre-historic age. The chief interest of Aldborough centres in its being the Isurium of the Romans, and probably the first Roman city laid out in Yorkshire. That it had precedence of York, the Eboracum of the Roman period, has been conceded, although the latter city subsequently became the northern metropolis of Roman Britain. Aldborough was also the point of junction of two main Roman roads, namely, those from York and Tadcaster, and a cross-country trackway from Ilkley, the Roman Olicana. Thus Roman remains in abundance might be naturally looked for at Aldborough, and some of these the visitors had pleasure in examining, as, for instance, the very remarkable mosaics of Roman handiwork. No English northern town is so rich in these unmistakable

EVIDENCES OF ROMAN ART,

civilisation, and prosperity as Aldborough. It far eclipses York, where only three or four mosaic pavements have been discovered, while on the site of Isurium the number discovered exceeds a score. The fact that those inspected remain in the position where they were originally designed lends them an additional charm. The museum of Roman remains is not extensive, but is very interesting as containing nothing but what has been unearthed in the locality. Of the ancient city wall of Isurium several detached portions have been opened out for inspection, but as the stones of which they were composed became the common quarry for generations of builders in the immediate locality, great gaps occur which are only traceable by the debris left by vandalism. The ground plan was of quadrangular form. The question from what quarry were these stones obtained has been a moot point with antiquaries, as there is no stone corresponding to them in the neighbourhood.

REMOVING A NOTABLE CHURCH.

SIDE by side in Great Ormond Street stand two very interesting hospitals, one for suffering children and the other for adults. For a long time it has been felt that both of these valuable institutions require enlargement; but the difficulty has been that one could only be enlarged at the expense of the other. This difficulty has, however, been at length settled by an arrangement between the two institutions: to the effect that the children's hospital should purchase the site of the Hospital of St. John and St. Elizabeth, the latter being re-erected upon ground secured in St. John's Wood. One of the obstacles which at first stood in the way of this very desirable arrangement was the costly and beautiful church attached to the hospital, but the architect consulted on the subject has shown that this can be taken down and transferred stone by stone to the new site. "The Hospital of St. John and St. Elizabeth," as it is generally called—or to speak more correctly, the Hospital of St. Elizabeth and the Church of St. John of Jerusalem—in Great Ormond Street was founded in 1862 by the late Cardinal Wiseman and Sir George Bowyer, M.P. The dedication of the church bears reference to the knightly "Order of St. John of Jerusalem," better known as the "Knights of Malta." These knights were a branch of the great order of the Knights Templars. The Church of St. John of Jerusalem was erected entirely at the cost of Sir George Bowyer—who was himself a Knight of Malta—from the designs of the late Mr. George Goldie. It is quite a gem of Italian Architecture, and some beautiful old objects of ancient Art of the Renaissance period, a magnificently carved tabernacle of tortoiseshell, and marble altars, add not a little to its interest. The building will be removed to the new site and rebuilt, but advantage will be taken by the present architect, Mr. Edward Goldie (son and representative of the first architect), of carrying out the sides of the building in stone in a similar style to the



AN OVERMANTEL AT HOUGHTON. DESIGNED BY INIGO JONES.

front, and of raising the dome upon a "drum" surrounded by a colonnade. A nun's choir will also be arranged, for which there was no sufficient space in the building as erected in Great Ormond Street. The hospital itself will be entirely new, for, as the old building was of brick, and insufficient in scale, it was not thought advisable to rebuild any portion of it except the church.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
June 8th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THERE is an exhibition of the antiquities found at Silchester at Burlington House. It includes objects in bronze, earthenware, iron, and bone. About five acres were excavated last year. The remains of many buildings were unearthed, including the foundations of a house of unusual size. A wooden tub, found at the bottom of a well, was in a complete state of preservation, save for one rotten stave. It measures 6ft. in height, and will be deposited in the Reading Museum. This year will probably bring to light many relics of the ancient Celto-Roman city. Two insulae are to be excavated, and a triangular piece of ground to the south of them.

A CORRESPONDENT sends us the following, taken from a young architect's letter from Italy, and his appreciations may be of interest to stay-at-home students:—"I am not disappointed in Venice, excepting that I cannot find so many picturesque incidents off the Grand Canal as I expected—the shabby walls of the decaying houses are not beautiful. I think the byeways of Belgium are almost more attractive, but the Grand Canal makes up for everything. I admire St. Mark's both inside and out, though at first the exterior greatly disappointed me, it seemed so dwarfed by the great tower. How one misses a broken skyline, the perpetual cornice and horizontality become monotonous at times. I look forward to some interesting days at Verona."

MR. HERBERT J. FINN once more occupies the Modern Gallery with his exhibition of pictures in the media of both oil and water-colour. In entering the running as an exponent of picturesque qualities in Architecture, Mr. Finn has probably done wisely; his pictures of Canterbury—the cathedral, cloisters, and gateways—form the staple part of the watercolour section, and among them is to be found the best work, from a technical point of view. Canterbury certainly lends itself well to pictorial representation, and the artist has been especially happy in his selection of subjects, as regards fine composition; in this essential his work cannot be too highly praised. Of the series that deals more or less with the cathedral, "The Crypt" is the most entirely satisfactory, being a finely rendered piece of difficult drawing, and full of delicate and harmonious colour.

In the other cathedral subjects, one feels that, although there is a grandeur inseparable from such subjects, they are dealt with rather too exclusively from the view-point of the architect, and hardly enough from that of the artist, who would fain create a picture, treating

the structures as important features, but in no sense sacrificing sky and general atmospheric effect to them. The knowledge of conventional greyness, too, seems often to limit artists who paint old buildings in their use of colour, and the rich variety resulting from, say, sunlight on rugged masonry, is rarely appreciated. Mr. Finn gets agreeable effects in his less-fettered river and landscape work; "The Medway, Maidstone," and more especially "Sunlit Barges off Margate," are charming sketches. "Cloud Shadows over the Sea," is a beautiful subject, but its carrying-out in the present instance is too tentative and timid to make it really impressive.

BEFORE the Metropolitan Tribunal of Appeal, composed of Mr. Arthur Cates (President), Mr. A. A. Hudson, and Mr. J. W. Penfold, and sitting at the Surveyors' Institution last week, an important case under the Building Act, and involving the rights of the London Council to refuse to sanction plans for the erection of buildings under certain conditions, came on for decision. The case was one in which Mr. Charles Gillett, a builder, of 190, Elmtree Road, Upper Holloway, was the appellant, and the London County Council were the respondents.—Mr. Wootten, for the appellant, in stating his case, said early in the present year Mr. Lawrence, as the architect to the appellant, submitted plans to the London County Council of two houses which it was proposed to erect in Hornsey Road. The houses were intended to be for the use of the working classes. On April 17th the Council refused to sanction the plans, but gave no definite reason for their refusal. It was held, for the appellant, that the plans were faultless.—Mr. Seager Berry, on behalf of the Council, said the crucial point was the allowance of feet in front and behind, because if the houses were started they could be built block after block, and the builder could shelter himself behind the fact that he had so many feet of open space in front and so many at the back. It opened up a vast field for irregular construction in London, and the Council, in consequence, refused to permit the possibility of it by interpreting what they thought would be the front and back, and not what the architect or builder thought in that respect. It was the intention of the Legislature to prevent that mode of construction.—The Tribunal, after a lengthy deliberation, dismissed the appeal, and made no order as to costs.—Mr. Wootten applied for a case to be stated for the High Courts, but the Tribunal reserved their decision as to whether their finding was based on points of law or matters of fact.

AN important addition to the fittings of the Church of St. Aidan, in the Roundhay Road, Leeds, was dedicated two or three days ago. A rood was a part of the original design, and, from the opening of the church, a heavy oaken beam across the entrance to the choir has indicated its position, and, in its bare and unfinished state, has been an undeniable eyesore. The rood has now been finished, at a cost of £300. The design is by Mr. Crawford Hick, the architect of the church; it has been very satisfactorily carried into execution by the carver, Mr. Hedley, of Newcastle. In the centre stands a large figure of the Saviour hanging on the Cross, flanked by figures of the Blessed Virgin and St. John the Evangelist. At the extremities of the supporting beam are kneeling figures of adoring angels, whose folded wings form a very striking and beautiful feature of the design. Along the front of the beam, displayed on a label, is the text: "I, if I be lifted up, will draw all men to me," from which, by a singular mischance, the first word has been omitted. The material is oak, and the carving is bold, vigorous, and spirited. The figure of the Virgin recalls the well-known Nuremberg Madonna, and is, like that famous work, dignified and refined. A certain touch of sentimentality seems almost inevitable in the treatment of St. John, and it is not altogether absent in this case. The central figure is quite worthy of its position, and the ornament applied to the cross gives exactly the right feeling of conventionality to the group. So many otherwise fine modern

churches are spoilt by insipid sculpture, that such strong and spirited work as this deserves recognition. What the rood, in common with the rest of the church, still wants, beyond all other things, is colour. The rood should be the central point in a well-considered and coherent scheme of colour, such as is even more requisite in a building of the Basilican type than in Gothic interiors. At present the new oak and plaster have a rawness of colour that is very detrimental to what promises to be one of the most notable church interiors in the district. We believe that the architect of the church has all along planned it with a view to the lavish but judicious use of colour, and make no doubt that its application to the rood is intended. Only it is necessary to point out that in its present condition it cannot be regarded as producing its fullest possible effect.

THE latest projected addition to London's travelling facilities is an electric railway from Piccadilly Circus to South Kensington. Parliamentary powers have been obtained to construct the line, which will be commenced shortly. The line will run straight down Piccadilly and the Brompton Road to the South Kensington Metropolitan Station. Sir James Szlumper is the engineer of the line, and the electrical arrangements will be under the supervision of Professor Kennedy, F.R.S.

THE Improvement Committee of the Hull City Corporation have adopted a scheme for recommendation to the Council for the Improvement of Great Passage Street. This thoroughfare is short and very narrow, and is situated in a very crowded district. The widening will have the effect of opening up considerably the present means of communication, and when the whole scheme is completed it will form the beginning of a thoroughfare two miles in extent, and running through many important streets of the city. The total expenditure to be incurred is estimated at £21,850.

THERE has been a great deal of talk lately about Art for Art's sake, which is the result of people looking so much for the story or meaning of a picture that they fail to see anything beyond. This became so objectionable to the artistic feeling of the modern artist that the consequence was that he wanted everything of the kind swept away—everything but the decorative qualities of the painting. Whistler, Alfred Stevens, Monet, and other well-known painters would have nothing but Art for Art's sake. We are told by Whistler that as music is the poetry of sound, so is Art the poetry of sight. But is not music something more than mere sound—does it not suggest feeling and meaning? Why do we become worked up and emotional over a beautiful oratorio? So there should be a meaning behind the most decorative of paintings. Should not every picture present some feeling, something behind the decorative quality? The lines, the lights, and all the objects should be arranged to convey some meaning, or if they are so indefinite that you cannot distinguish one thing from another, then it is not a picture; it is only a dash of colour which may be interesting to the eye simply as a colour spot.

WHISTLER may call one of his small panels of the sea and sky a symphony in blue and gray, but with a few lines he does put meaning into the colour. So you see, says the Art Interchange, the picture cannot succeed very well without a subject. But painting is not a mere vehicle for all history, nor should it be only used for decoration. The decorative place is quite as important as the illustrative; but is there any reason why both should not be important? These are simply two kinds of Art, but it seems that there are four kinds of Art which help to make a perfect picture. Whether decorative or illustrative Art came first, we can only conjecture. A painter draws a few lines that suggests a bear. Why does he do this? Is it not that the artist desires to convey some thought, to say something about the bear? It is useless to say this is not Art. We believe it is Art. We meet the

same kind of thing in Egypt, where all the decorations were illustrative of Egyptian life. The subject was perpetually in evidence throughout the decorative motive. It was the only way the Egyptians had of recording their history. What about the great Art of the Italian Renaissance? Was not the theme used by the artists of importance? Almost everything was illustrative of some sacred story.

THE interior of the picturesque village church dedicated to the Holy Trinity at Down Ampney has been furnished with some notable examples of modern ecclesiastical Art. The rood-screen is, as are also the whole of the additions, the design of Mr. Charles E. Ponting, of Marlborough. It is of beautiful workmanship, conceived in a free fifteenth century style of Gothic Architecture, graceful in detail, although massive in construction. The screen has been erected immediately beneath the chancel arch, and now marks the line of demarcation between the nave and chancel. It consists of three distinct bays on either side of the doorway. These are well carried up aloft, and have their lower panels filled with crisply cut tracery. Each bay has an ogee head with carved crockets of sacred design, terminating with *fleur-de-lis*, and surrounded by a wealth of pierced tracery with cusps of charmingly carved cupids' heads. From moulded caps spring the finely traceried groining which runs the whole length of the screen both on eastern and western sides. Between each bay are ornamented springers, finishing with sculptured heads. Above the groining an inverted cresting marks the commencement of the main cornice, and upon the latter there are delicately carved symbolical ornaments, interspersed by carved angels in devotional attitudes, surmounted by a pierced cresting of rich design, through which run buttressed pinnacles, supported by angels holding shields whereon are carved emblems of the Passion.

ABOVE the whole rises a strikingly-designed rood cross, containing a wealth of carving, tracery, and sculpture in relief. On the eastern side of the screen much carved work is introduced, and in the intersections of the groining are some foliated bosses, in which the sacred emblems of the Passion have been introduced. The screen has been made entirely of oak, and is, perhaps, one of the finest that has been erected in modern times. The reredos is also an interesting work of art. It is fixed upon a re-table of Hopton Wood marble, the mensa of the altar also being of the same material. The reredos proper is composed of oak. The central panel consists of a representation of Our Lord crucified, with the Blessed Virgin and St. John standing at the foot of the cross, all in high relief. In quaintly conceived niches at the sides are a quartette of angels carved in the round, the whole surmounted by a bold and intricately carved canopy, with much delicate pierced work, and pinnacled terminatory shafts. The north side of the reredos is occupied by carved figures of the four great Virgins of the Latin Church, viz., St. Cecilia, who is shown with the organ as her emblem; St. Agnes, with the lamb; St. Agatha holds the shears; and St. Lucia bears aloft a lamp and carries a palm. In the south compartment are the four Latin Fathers, St. Jerome being habited in the hat and robes of a cardinal, bearing a church in his hand; St. Ambrose wears the episcopal robes as Bishop of Milan, with mitre and crozier, and bears a knotted scourge; St. Augustine is also habited as a bishop, and carries a book; and St. Gregory is in pontifical robes, with a dove hovering around his head. All this sculpture, like the crucifixion, is intensified by a background of gilded diaper work. The supports of the reredos are composed of gesso panels of gold ornament. The whole of the sanctuary has been laid with marble, and all harmonises with excellent effect. The church has been seated throughout in oak, as also have the side chapels. The south chapel has been enclosed with screens, the altar foot pace laid with many coloured marbles, and the old tombs restored.

THE opening of the great tower at New Brighton took place a few days ago. This mighty structure has been in process of erection nearly two years, and no less than £300,000 have been spent on the undertaking. The tower is 500ft. above the level of the sea. In the lower portions of the edifice are a theatre capable of seating 3000 persons, a very large ball-room, a winter garden, restaurants, cafés, and shops. From the elevator hall run four electric lifts capable of carrying 2000 persons within the hour to the upper platform of the tower.

A BEAUTIFUL chancel screen is in course of erection at St. Werburgh's Church, Derby. St. Werburgh's is a spacious modern edifice that has replaced an old fabric of no architectural interest or pretensions, although of ancient foundation, for St. Werburgh's was one of the six Derby churches mentioned by the Domesday Book as extant in the time of Edward the Confessor, and again in the reign of William the Conqueror.

ARCHITECTURAL opportunities—occasionally golden ones—arise not infrequently in our large towns, but it would be difficult to point to one which has been seized to better effect than the laying out of the triangular piece of ground styled "City Square," Leeds. Whatever may be the ultimate criticism upon the design, either as a whole or in its parts, it will (says the Yorkshire Post) be next door to unique in its coherence and unity. An important feature is to be a series of statues of men who by their lives or works have influenced the history of the town and district. Mr. H. C. Fehr, the designer of the fine coloured reliefs in the Wakefield County Hall, has modelled a statuette of Watt, whose invention of the steam engine has so materially helped to make Leeds what it is to-day, while Mr. Drury is the author of a figure of Priestley, who, as "the father of pneumatic chemistry," deserves to be classed as one of the most distinguished of the not very long list of natives famous beyond their parishes. Both are excellent pieces of workmanship, refined and dignified, yet full of vitality. Priestley's figure is in particular remarkable for a serenity that is most happy in a work intended to be of monumental character and proportions. The only adverse criticism, and that a sufficiently obvious one when the figures are placed together, is that there is too much similarity in pose and gesture, a coincidence which might have been avoided, one would think, by a little collaboration on the part of the artists, and which will no doubt be corrected in the finished works.

MR. DRURY's design for the candelabra to be placed at the entrance to the lavatories is necessarily not more than a suggestion, owing to the small scale employed. The figures at the base are charming, and the introduction of the Leeds owls is most happy, but the upper part seems, so far as it is competent to judge at present, rather wanting in character and distinction as compared with the important base. Still, like all Mr. Drury's work, it has genuine artistic feeling in every line. John Harrison, the loyal benefactor of his native town, who endowed it with one of the most interesting of its public buildings, is worthily, if tardily, to be accorded a public monument in this gallery of local celebrities, and it may, perhaps, be suggested that a fitting pendant to him would be another church builder—in a still wider sense—Dr. Hook, the "great Vicar of Leeds," who raised so high a standard for the parish priest of the nineteenth century. From the purely artistic standpoint, his rugged face, so full of character, would furnish a delightful subject, while his decanal gaiters would banish the sculptor's bugbear—the prosaic trousers of nineteenth century costume.

MR. G. A. T. MIDDLETON says, in a letter to the Times: "The verdict of manslaughter against the architect returned by the coroner's jury in the case of the Abbey Mansions disaster raises a point of most serious public interest, for it amounts to a declaration of want of skill

or knowledge upon his part, and the question arises as to how large a proportion of architects are fully competent to protect the lives of the public using their buildings. Anyone may pose and practise as an architect. There is no compulsory training, no compulsory examination, and the only voluntary examinations, those of the Royal Institute of British Architects, are deplorably weak on the scientific side—weak to the extent of danger. Some few thoughtful men long since recognised this, and promoted a Bill which would place architects, in the matter of training and examination, upon the same footing as doctors and lawyers. Is there no member in the House who at this moment, when public attention is drawn to its importance, will take the matter up, and not rest until the Bill becomes law?"

BIRMINGHAM is just now in the throes of a great controversy over the future of its tramways. The Canadian company who recently obtained a lease of the tramways are fighting for permission to adopt overhead electric traction. The Corporation hitherto have stuck stoutly to the underground conduit system; but the company have just obtained a slight advantage by inducing the Public Works Committee to sanction the adoption of the overhead system upon a short route of 5½ miles by way of experiment.

NEAR where Queen Victoria Street, Cheap-side, Cornhill, Threadneedle Street, Princes Street, Lombard Street, and King William Street converge, there is now in course of construction, in connection with the Central London Electric Railway, a subway which will enable foot passengers to get from any one point to another, without imperilling life and limb. There will be several flights of steps from the subway communicating with the chief thoroughfares, and, as the subway is only a few feet below the roadway, it can be easily reached by a few steps.

IN excavating a large rectangular cellar in connection with the new Congregational Church and Schoolrooms at Morpeth, the workmen came upon a huge boulder of whinstone lying right in the middle of the space. It was oblong in shape, and its upper surface was little more than 2ft. below the ground level. When the gravel had been taken out to the required depths, it was found that the part of the boulder still embedded was greater than the portion exposed. As blasting would have been a dangerous operation in such a situation, and no ordinary appliances were equal to lifting such a block, recourse was had to a very primitive mode of splitting the unwieldy stone. A fire was kindled on and around it, and the unequal expansion of the part exposed and the part still sunk in the ground, caused the bared and heated portion to split off, leaving the remainder *in situ*, at a level that would not interfere with the design of the boiler house. The same excavation exposed another boulder. It was very much smaller, and was of limestone. The distance between the two was less than 1yd. The surfaces of both were smooth. It was estimated that the limestone boulder weighed between two and three tons, and the whinstone one not less than twelve tons. They are fresh evidences of the greatness of the natural forces in operation during the glacial period, when such heavy masses were carried long distances, ground, rolled, and rounded, and finally deposited far from the elevated rocks of which they were fragments.

A SMALL but interesting collection of works by members of the Society of Mezzotint Engravers is being exhibited at Messrs. Grundy and Smith's galleries. The rise of the society is in itself a welcome sign that mezzotint engraving is regaining its old popularity in this country with both artists and the public. The revival is no doubt partly due to the invention of the process for facing the engraved copper plate with a thin layer of steel, so that it will wear better and give a larger number of brilliant impressions. A more potent cause, however, is the ability of many of the artists

who have devoted themselves of late years to mezzotint. Professor Herkomer, for one, has done a great deal for the art, and so have several members of this society, notably Mr. Wehrschmidt, Mr. Gerald Robinson, and Mr. Finnie. Most of the works now exhibited are reproductions of well-known pictures that show how faithfully mezzotint can render the effect of paint, and do not necessarily illustrate the special beauties of this kind of engraving.

ARTISTIC objects, valued at £6000, were recently stolen from the rare collections of the Union Centrale des Arts Decoratifs, which, since the demolition of the wings of the Palais d'Industrie, have been stored in the Pavillon de Marsan of the Louvre. The collections are estimated as worth £80,000, and were safely packed in cases, some of which were found broken a few days since, and on further investigation it was seen that numerous articles, including a court mantle of the thirteenth century, several antique saddle-cloths, rare old lace tapestry dalmatics, and other ecclesiastical vestments, collected from various countries were missing. The detectives who were set to work visited the old curiosity shops of Paris, and recovered some of the stolen articles, at the same time ascertaining from the dealers the names of the persons who sold them the antiquities. This led to the arrest of three men, and notably of one Caron, in whose rooms many of the purloined curiosities were discovered. He had placed some of the choicest Gobelins and Beauvais work on the walls of his bedroom, while an altar-cover of the sixteenth century ornamented his mantelpiece, and on his table was a saddle-cloth which had belonged to Marshal de Villars, the famous French war leader.

THE restored church of St. Helen's, Austerfield, has just been opened. The church was built about 1130, and with the exception of the window, the rebuilding of the north aisle, and the addition of the porch, the original Norman structure remains intact. Prior to the recent restoration, the church presented some of the worst features of church desecration—the walls, both inside and out, were coated with plaster and colourwash. In 1835 the fine old roof and oak seating were destroyed and replaced by a common barn roof and plaster ceiling, high box pews, and an unsightly gallery. All these eyesores have been removed. A fine oak roof has been placed on the building, and decent seating accommodation has been provided. It was discovered that the north wall concealed a beautiful Norman arcade. This has now been opened out, and a new north aisle built on the site of a former aisle. The architect for the restoration has been Mr. C. Hodgson Fowler, of Durham, under whom the work has been carried out by Messrs. Bowman and Sons, of Stamford, at an estimated cost of £2000. In addition to this work, seven stained glass windows have been inserted.

THE sub-committee charged with the responsibility of recommending a site to the West Riding County Council for the erection of another lunatic asylum in its administrative area met the other day at Wakefield. Several estates more or less suitable were mentioned. Among these were Crow Nest, near to Lightcliffe Station, on the Lancashire and Yorkshire Railway, and formerly the residence of Sir Titus Salt; Fixby Hall, three miles from Huddersfield; Coley Hall, near Lightcliffe; and Stortheres Hall, Kirkburton. Two of the estates—Crow Nest and Fixby Hall—were inspected weeks ago, and were regarded as possible sites. Since then, however, some members of the committee have visited Stortheres Hall, and they look upon it as the most favourable place for the erection of an asylum to serve the populous districts in the Calder Valley. No definite decision has yet been arrived at.

MR. JOHN STARFORTH, architect, of Edinburgh, died a few days ago. The deceased, who was seventy-five years of age, was born in Durham, and was educated at the University

of his native city. Coming to Edinburgh as a youth, he entered the office of Burn and Bryce, architects, and served his apprenticeship there. Subsequently he began business on his own account, and during his long professional career he enjoyed a large share of public favour. He became a recognised authority on English Gothic; and in many of the churches which he designed the influence of the graceful architecture of Durham Cathedral, which had impressed itself upon him as a lad, made itself felt. Among other buildings of importance with which his name is associated as architect are Dumfries and Galloway Royal Infirmary, Greenock Asylum and Poorhouse, Berwick Infirmary, Peebles Hydropathic, John Knox Memorial Institute, Eyre Place Church, London Road Church, Bonnington United Presbyterian Church, Moffat Parish Church, the first Kelso United Presbyterian Church, Nairn Parish Church, Holy Trinity Church, and Galashiels Free Church. He was in his day a noted church builder, and the many ecclesiastical edifices in all parts of the country which he designed are a credit to his artistic ability and taste. In a national competition for the Edinburgh Prince Consort Memorial his design received the first place, but it was afterwards abandoned for the present equestrian statue of the Prince in Charlotte Square. Mr. Starforth also gained the gold medal of the Highland and Agricultural Society for the best design for farm buildings. He was entrusted with the erection of many mansion-houses in the Highlands and West of Scotland.

THE artistic world at the commencement of the nineteenth century, as far as Sculpture and Architecture were concerned, was animated, says the Art Journal, by a marked endeavour at a closer approximation in style to the chaste severity of pure Greek Art. Extended exploration and the advanced enlightenment of antiquarian research had produced a feeling of dissatisfaction with what had hitherto passed as respectable in the classic style. The good old useful Palladian Architecture was no longer in vogue. In sculpture the reign of the gods and goddesses, nymphs and fauns, and Roman Emperors of the periwig period was over. It can scarcely be wondered at, for the Greek craze was rampant everywhere, the very dandies were then styled "Corinthians," and the "girl of the period" emulated in her dress the scant simplicity of the Greek chiton. In those days the Antique School of the Royal Academy, at present so much despised, was in the very zenith of its glory; Fuseli, its enthusiastic keeper, shouting to the students, "The Greeks vere Gods! the Greeks vere Gods!" On this great wave of classic revivalism, Sir Robert Smirke and Sir Richard Westmacott, twin brethren Academicians, with steady hands and unimpassioned hearts, without encountering let or hindrance of any sort, steered their respective courses to honours and success, whilst others less fortunate, like Haydon, were dashed to pieces on the rocks of overweening ambition, or, like the modest Flaxman, left stranded on the cold mud-flats of neglect. Sir Robert and Sir Richard both possessed the happy knack of exactly satisfying the popular taste. Every building that was entrusted to Smirke for execution, whether theatre, post office, church, or museum, was sure to possess the required amount of classic simplicity and dignity, the Ionic portico and pediment generally forming the most important feature in the design; whilst in all the monumental figures from the hand of Westmacott that haunt our public squares, churches, and cathedrals, we plainly perceive a more or less successful amalgamation of the modern gentleman with the hero of antiquity, a result greatly due to the skill bestowed on the heavy draperies with which they are clothed, which draperies, besides giving a classic aspect to the figures, ingeniously help to support them on their pedestals.

THE Building Committee of the Glasgow International Exhibition, 1901, has resolved to recommend to the Executive Council that the following professional members of the

Building Committee, together with the Convenor and Vice-Convenor, be appointed a sub-committee to examine the competitive plans when received and to report: Messrs. J. J. Burnet, A.R.S.A., William Leiper, R.S.A., A. B. McDonald, E. W. F. Salmon, James Thompson, and Robert Whitson.

A NUMBER of interesting frescoes which have been warehoused for some time will be put up to auction by Messrs. Foster in Pall-mall to-day (Wednesday). The frescoes were previously discovered in an English cellar, but this portion of their history is enshrouded in mystery. They are alleged to have been removed from the walls of the oratory of the oldest church in Milan, on which they are said to have been painted 400 years ago by Bernardino Luini. The account given of the manner in which they were removed from the church walls is ingenious. It is said that the face of the frescoes must have been covered with paper, and the wall behind them knocked away piece by piece with the exception of half an inch of plaster. Canvas was then pasted upon the back. It was not stated that the church was absolutely reduced to ruins by this process, but it sounds likely.

IMPROBABLE as this story seems, the pictures have attracted a great deal of interest both in London and on the Continent, and it is quite possible that the National Gallery and some of the foreign galleries may be represented at the sale. The subjects of the frescoes appear to be remarkable. The catalogue says that one of them shows a number of half-length figures, each face being deeply impressed with devotional sentiment. "Lot 2" is a continuation of the same. It will be interesting to discover on Wednesday what the continuation of a face impressed with devotional sentiment is like. Connoisseurs will also have the opportunity of acquiring a 40-in. high fragment of Roman soldiers. The description of the frescoes states that they comprise a grand altar-piece, the Last Supper, two wings of life-sized figures in ecstasy, four large panels, the Ascension of Christ, the Virgin enthroned, the agony in the garden, and the hall of Caiaphas; the ceiling in five panels, the lamb, angels, and winged beasts.

LORD EUSTACE CECIL, brother of Lord Salisbury, has erected at his sole expense a beautiful and substantial church at Lytchett Minster, Dorset, where he resides. The building is erected in the Early English style, and, with its bold tower is of graceful design, and presents a most agreeable appearance. The internal fittings are of oak, and there is a handsome front of Caen stone with Purbeck shaft.

ANOTHER collapse of a building took place in London last Thursday, though happily neither on so large a scale nor with so appalling a loss of life as in the recent calamity in Victoria Street. The building was in course of construction on the foundations of a public-house lately pulled down in Devonshire Street, Portland Place, a street which runs parallel to Cavendish Street, and is only a short distance away from High Street, Marylebone. There is, or there was, on the north side of the street, a block of two houses between the Devonshire Place Mews and Beaumont Street. One of these houses is still standing, the other had been pulled down to the level of the street, and was being built up again over its former cellaring, which appears to be extensive. On Thursday the portion of the wall which had been built up on the Mews side of the public-house fell with a crash, burying one workman in the ruins and throwing another down. The first workman was killed, and the second injured. The contractors and the builder, who were on the spot, were anxious to give every information; one of them remarked that in his opinion the wall had fallen because the arch of the cellar upon which it was built was too wide, and therefore too weak to support the weight. There is not very much to see, for the amount of wall that has fallen is very slight, but the girders have all been thrown down, and what was a wall is now a rubbish heap.

FOUNDATIONS *

AS APPLIED TO LONDON BUILDINGS
AND RIVERSIDE FOUNDATIONS.

By A. T. WALMISLEY.

(Continued from page 309.)

THE City and Southwark Subway, now used as an electric railway, in its course between the Middlesex side of the river and the Monument Terminus, passed up Swan Lane near some heavy warehouses tenanted by Messrs. Harker and Co., 102 and 103, Upper Thames Street, spice merchants; Messrs. Walker and Co., Old Swan Lane, packers; Messrs. Davies and Royle, 3, Old Swan Lane, wholesale stationers; Messrs. Wigan and Co., 2, Swan Lane, importers of isinglass. Near the latter warehouse, immediately adjoining the route of the subway, the tunnel left the clay and entered

THE WATER-BEARING STRATA.

These warehouses have basement, ground floor, first floor, second floor, and top floor space, all busily occupied, some rooms being used for heavy papers, others for cases containing various kinds of fruit and general heavy goods. When the subway works were commenced, various old cracks were found to have existed in these buildings, which gave rise to the apprehension that some danger might occur in the construction of the new tunnels, or by the subsequent working of the railway, so that certain marks were noted, and pieces of paper were pasted over various old cracks, and in other cracks cement-filling was put in, levels of doors and sills taken, and the buildings plumbed both in and out near the angles. This was in the year 1887, before the construction of the tunnel commenced. At Messrs. Wigan's they had an engine (ten-horse-power) constantly at work upon the ground floor, which would have run irregularly in the event of settlement. Swan Lane is about 13ft. 6in. wide, and the tunnels are there placed one over the other. Compressed air behind a bulkhead was employed to restrain the advent or inflow of water into the space excavated, and no settlement of the upper surface resulted, the water-bearing strata being never without support.

THE VALUE OF THE GREATHEAD SYSTEM

of working enables a running strata to be broken into without danger. Where buildings and wharfs are situated on the side of a river unsecured, and where the materials of its bed are not sufficiently firm to allow a shelf being maintained between the buildings and the low water line, the shore may run down and carry the foundation of the buildings along with it. An instance of sand thus running occurred in 1837, during the progress of the Thames Tunnel, notwithstanding the close protection afforded in the shield used by the late Sir Isambard Brunel, the sand running in to such an extent that, at a distance of 50ft. east of the shield, the bed of the river sunk 13ft., bringing the river within less than 3ft. of the level of the excavation, while immediately above very little depression took place. A similar instance of running gravel is recorded when the shield approached the wharf on the Middlesex side, producing a conical depression 30ft. in diameter and 13ft. deep on the shore, followed by a subsidence of the wharf front. In the construction of the Blackwall Tunnel the use of the Greathead shield enabled the work to be successfully accomplished. In the construction of the Metropolitan District Railway between Westminster Abbey and Westminster Hospital the soil was sand and gravel, heavily charged with water, Westminster Abbey itself being on the sand. The nearest point of the works to the main walls of the Hospital was 23ft., and to Westminster Abbey 70ft. 8in. The tunnel was made without the slightest settlement of adjacent buildings, notwithstanding the fact that in wet sand and gravel pumping was carefully resorted to, in order practically to dry the ground sufficiently for work. By the aid of

iron tubing and the use of compressed air with the Greathead shield, as adopted in the City and South London Railway work, we need experience no anxiety. You can work as safely

IN GRAVEL CHARGED WITH WATER

as you can in London clay. The ordinary timbering of a tunnel is a yielding material, so that, unless special precautions are observed, there is a risk for the framework to yield which is employed to temporarily hold up the excavation before the brickwork is put in; but with an iron lining and cement grouting outside there is no need of alarm. The danger connected with pumping is obviated when it is carefully done. If it is carelessly done you may draw some of the finer particles of sand and water, and so undermine the foundations of an adjacent building to a greater or less extent. Where any accidents occurred on the construction of the City and Southwark Railway it was near the brick stations, where wood centres were introduced, but by adopting cast-iron lined shafts to the stations with cement grouting outside, any danger to surrounding property is avoided.

ON THE METROPOLITAN RAILWAY

ordinary stock bricks in blue lias lime were used. In the Metropolitan Railway settlements occurred, as it was constructed mainly without an invert. The ultimate improvement was to put an invert, which, of course, gave greater support from the pressure of the sides. The system of construction was in some cases tunnel, near Kensington, for instance, but generally cut and cover. With the use of the Greathead shield upon the Central London Railway, where not in the clay, compressed air is introduced, and the work is entirely in tunnel. The iron plates are properly jointed throughout. In the King's Road Bridge over the Regent's Canal, Camden Town—designed by Messrs. Thomas and Taylor—the foundations were sunk 22ft. below the roadway level, or 11ft. 6in. below the water level in the canal and 5ft. 6in. below the bed of the canal. The soil from the top of roadway to a depth of 18ft. was found to be of a clayey character, below which was found a seam of clay-stones 1ft. deep, and then clay suitable for a foundation. A trench 50ft. long was made, in which a concrete bed 8ft. 6in. square in section was built, with counterforts added at every 12ft. It was found that this ground could be timbered by experienced men without driving piles, and without pumping beyond the removal of a small amount of soakage while the men are not at work.

OLD WESTMINSTER BRIDGE,

which was built between the years 1738 and 1750, consisted of thirteen principal and two smaller arches nearest the abutments, 25ft. span, all semi-circular, springing from the piers at about 2ft. above the level of low water. The central arch was 76ft. span, but the principal lateral arches decreased in width by intervals of 4ft. each, and their intervening piers were supported by caissons consisting of rafts of timbers floated into position and then sunk in place, a level area having been previously dredged to receive them. Each raft was about 80ft. by 30ft. by 10ft. deep, made watertight all round, within which a portion of the pier was built, and the raft was then floated to the site of the proposed pier, the water admitted by sluices in the sides, and the foundation guided to its proper bed by ropes from a light barge previously moored off the shore. None of the foundations, which all rested on a substratum of sand and gravel, were at a greater depth than 14ft. below the bed of the river, and parts were not more than 5ft. or 6ft. The wooden platforms carrying the base of each pier thus ran the risk of settling upon an irregular foundation, and gradually getting undermined as the bed of the river lowers. Originally the piers were intended for a light wooden structure, but when it was determined that the bridge should be built of Portland stone, a stone casing was built around them. The bed of the river on which the caissons rested became undermined, particularly when, in later years, the tidal current, since the removal of the numerous piers of old London Bridge, ran off

with greater rapidity than when old Westminster Bridge was erected, and produced a general, though not uniform, lowering of the level of the river bed. A similar plan was, however, followed in the case of

OLD BLACKFRIARS BRIDGE,

built 1760 to 1770, the platforms here employed being 88ft. by 37ft., and two balks and a half thick, but in this structure bearing piles were introduced to obviate the liability to settlement. This bridge consisted of nine arches, elliptical in shape, constructed in Portland stone. The centre arch was 100ft. span, and the side spans decreased gradually to 98ft., 93ft., 83ft., and 70ft. Waterloo Bridge, built in 1811 to 1817, contains nine equal semi-elliptical arches of 120ft. span, and was the first bridge on the river in which coffer-dams were employed. These consisted of double piling, with puddle between, and did their work successfully during construction. Like old Westminster and Blackfriars Bridges, however, the foundations of Waterloo Bridge were left upon sand and gravel, and not carried down to the clay. Each pier was, however, built upon piles, there being one pile to every square yard of bearing surface. The heads of these piles were sawn off, and timber sills or bearing piles and waling pieces fastened on both transversely and longitudinally, upon which a flooring of 6in. planks were fixed, and then the first course of masonry laid thereon. The system of

LAYING THE FOUNDATIONS DRY IN COFFER-DAMS

was followed in Southwark Bridge, and the same plan adopted at new London Bridge, the former built 1814-1819, and the latter 1823-1831. In old London Bridge the piers were built on platforms supported on elm piles, driven into the bed of the river and cut off at low water level. In new London Bridge the foundation consists of timber piles 12in to 14in. square, shod with wrought-iron shoes weighing 35lb. each, and hoops 30lb. each, driven at intervals of 3ft. 6in. to 4ft. centre to centre, so that 16 square feet of masonry are taken by each pile. The bearing piles are here driven into the London clay about 18ft. below the platforms. The importance of establishing a foundation to resist undermining action cannot be overrated. Uniform width in a river produces uniform scour, which, while it creates a better channel for the discharge of flood water, also attacks any impediments it encounters. Since the

CONSTRUCTION OF THE THAMES EMBANKMENT,

the bed of the river parallel to the embankment has varied considerably. In new Westminster Bridge, completed in 1862, the foundation of each pier is entirely piled over with 145 elm piles, driven centre to centre, 3ft. 3in., and 2ft. 6in., passing through the gravel into the London clay, and cut off below low water. To avoid the expense of permanent coffer-dams, these piles were surrounded with iron piles connected by cast-iron plates, driven between them, known as "plate-piles," so as to form a complete casing, the interstices between all the piles being filled in with concrete. They go about 10ft. into the blue clay, and extend about a foot above the gravel bed. Upon these is placed a series of slabs of granite edgways, the plate piles being secured by two sets of ranges of iron ties, passing through the pier, and fixed by divers, the granite slabs secured both by the masonry of the pier and by the main piles to which the plate piles are connected. A complete caisson is thus formed, which has caused the necessity of the interior piles to be much questioned.

IN NEW BLACKFRIARS BRIDGE,

built 1864-69, wrought-iron caissons were employed for the foundation. Each pier stands upon four independent rectangular caissons, 36ft. by 18ft., carrying the centre of the pier, and two triangular caissons projecting beyond, to carry the cutwaters. These caissons were built upon a stage, and lowered by the aid of guide piles, into their assigned position, with their cutting edge resting on the bed of the river. The ground enclosed in each caisson was then excavated by divers, and the caissons sunk by being weighted with iron kentledge

* A paper read before the Architectural Association on May 20, 1898.

until the clay was reached, when leakage ceased, and the caisson by protracted loading took its final bearings at an approved depth of excavation. A material like the London clay is for all practical purposes incompressible, especially when prevented from spreading laterally, and deep down, so as to be unaffected by heat or damp. The caissons were then filled with concrete in cement, upon which was placed 8ft. of brickwork in cement, the top of which was at a level of 4ft. below low-water mark. A space of 1yd. was left between the caisson sections, which was subsequently filled with concrete in cement up to the same level, so as to provide an uninterrupted area over the base upon which each pier now stands, and the movable portion of the caissons above 4ft. below low-water level were removed as the work proceeded.

CYLINDER FOUNDATIONS

were first used by the late Sir W. Cubitt, at Rochester, and their employment has since been efficiently tested to show their adaptability for foundations. They were adopted for the original railway bridge at Blackfriars, 18ft. diameter, below the stone piers. Cylinder foundations, 18ft. diameter below, and 12ft. diameter above the bottom of the river are used for the piers of the Cannon Street railway bridge. At Charing Cross the cylinders are 14ft. diameter below and 10ft. diameter above the ground. The foundation cylinders of the Albert Bridge at Chelsea are 21ft. diameter, and their mode of fixture is described by the author in the discussion which took place on Mr. Crutwell's paper at the Institution of Civil Engineers, in which the foundations of the new railway bridge across the Thames at Blackfriars were described, and for which rectangular caissons, sunk 16ft. to 23ft. below the river bed, were adopted (see Min., Inst.C.E., vol. ci.).

THE VICTORIA RAILWAY BRIDGE

over the river at Battersea was originally constructed with piers on the up-river side standing on a bed of cement concrete enclosed by permanent sheet piles driven to a depth of 5ft. below the lowest foundation level, but when widened, the increased width of foundation was obtained by sinking permanent cast-iron cylinders to a depth of 45ft. below Trinity high water on the down-river side, four to each pier, 21ft. internal diameter, and 24ft. long, cast in segments 8ft. in length, with flanges for bolting together. These cylinders are filled with cement concrete for a depth of 12ft., upon which was laid brickwork in cement up to low-water level, above which level temporary wrought-iron cylinders were employed. The foundation cylinders were united at the top by a framework of cast-iron, but the masonry between the cylinders is principally carried by brick arches in cement turned between the cylinders in the hearting of the piers, which from this level to the springing line consist of solid brickwork in cement faced with masonry, so as to present the appearance below water of a continuous pier. In the

FOUNDATIONS FOR DESTROYER CELLS

and chimney shaft designed by Mr. J. W. Cockrill, a member of this Association, for the borough of Great Yarmouth, concrete blocks were employed, built in brickwork cylinders, and the maximum pressure per square foot on the subsoil was calculated to be 4 ton 63cwt. The ground is of a very marshy character, overlying sand and coarse gravel, into which the foundation is sunk. The cylinders are constructed of 9in. brickwork, built in Portland cement, the lower 4ft. being encased in a wooden drum, with cutting edge sunk into the gravel and sand at least 2ft. The cylinders are sunk by the aid of a grab, the bottom being levelled, and the concrete blocks laid by a diver. In this way the risk involved by pumping, which might disturb the foundations of cylinders already in their places, would be avoided. The blocks are grouted through a 3in. pipe with liquid cement, the joints and lewis holes having been previously filled with coarse, clean shingle. After about four days to permit the grout setting, and thus forming a watertight bottom, the cylinders are pumped out and filled with concrete composed of six

parts shingle, one part sand, and one part Portland cement. The remainder of the buildings, which are low, and light in weight, have

CONCRETE FOUNDATIONS TIED WITH IRON JOISTS

and spread to such a width that the sub-soil shall not receive a greater weight than half a ton per foot superficial, which, it has been ascertained by experiment, can be carried on this soil after the upper layer of turf and roots has been removed. In Drewry's "Suspension Bridges," published in 1832, we find the following allusion to foundations:—"A good plan for foundations, when the ground is loose and sandy, is to build upon wells, in the way practised in Madras for the public buildings. These wells are made circular, about 3ft. diameter, and one brick thick. The first course is laid and cemented together on the surface of the ground; when it is dry, the earth is excavated inside and round about it to allow it to sink. Then another is laid over it and again sunk. The well is thus built downwards, sinking the brickwork bodily to a depth of 10ft. or more, according to the building to be erected upon it, and the interior is filled up with rubble work. All the public buildings at Madras were erected upon foundations of this kind, which are found to answer very well." The Dover Electricity Supply Company erected works adjacent to the River Dour, from which the town is named. These works included a chimney, designed by Mr. F. G. Knight, of Westminster, about 130ft. high, with a concrete base 24ft. 3in. square by 5ft. deep.

THE RIVER TYNE AT NEWCASTLE

affords instructive examples of riverside foundations. The old quay walls, with a depth alongside at low water varying in the year 1840 from 2½ft. to 5½ft., had a piled foundation, and when in 1866 deeper quays were deemed essential, 12ft. of water at low tide was considered ample, which was subsequently increased to 22ft. Piled foundations were adhered to, until, upon the advice of the late Mr. T. E. Harrison, Engineer to the North-Eastern Railway Company, cast-iron cylinders sunk under atmospheric pressure for the sub-structure of the quay were adopted for new work, as cheaper than piled work. Two rows of cylinders were employed, each 5ft. diameter, placed 25ft. centre to centre longitudinally, the front and back cylinders being surmounted by cast-iron beams, from which masonry and brick arches were turned. Longitudinal metal sheet piling, up to the level of low water, was driven in the form of a segment between the front cylinders, but proved too weak for the increased depth of water after the bed of the river had been dredged out. The intervening sheet piling was done away with, and a more continuous front row of cylinders substituted, 13ft. 9in. centre to centre, with elliptical cylinders intervening. These likewise proving too weak, a close row of 6ft. front circular cylinders was tried, the back cylinders remaining as before, but tied to every alternate front cylinder by

A WROUGHT-IRON BAND

passing round both. The same method was adopted under a large grain warehouse built on the quay. Finally, in the rebuilding of part of the 1840 wall, well monoliths of concrete were, upon the advice of the late Mr. P. J. Messent, Engineer to the Tyne Commission, sunk for the foundation of a wall constructed to give a depth of about 20ft. at low water spring tides, and this plan has since been applied to the reconstruction of all the old quays requiring renewal. The blocks are 30ft. long, 20ft. wide, and 37ft. deep, with a well 20ft. by 10ft., and walls 5ft. thick, forming concrete caissons, sunk to an average depth of about 32ft. 6in. below low water, and are set about 2ft. apart, the interior and also the space between them being filled with concrete. On these blocks the masonry and concrete superstructure was built. Further details respecting the formation and mode of sinking the monolith foundations, built by Mr. W. G. Laws, City Engineer, Newcastle-upon-Tyne, will be found in a paper by his

assistant, Mr. Adam Scott, published in the Minutes of the Institution of Civil Engineers, vol. cxix., page 291.

CONCRETE CYLINDERS

have, upon the advice of the late Sir John Coode, been employed by his successors, Messrs. Coode, Son, and Matthews, for the foundation of the abutment to the new east pier to the Outer Harbour Extension at Dover. These cylinders were cast upon a lower seating ring, 12in. deep, to form a cutting edge, the cylinders being 7ft. external diameter, 15in. thick. They were cast in wood moulds with 5 to 1 Portland cement concrete, and were allowed to set at least ten days before lifting, and to season one month prior to removal from the yard to their destination. The top and bottom edges of all intermediate rings are toothed 6in. deep, and tapered lin., so as to key into each other when sunk in situ. The cast-iron cutting edge shoe is bolted into the bottom rings by lin. bolts, let in flush at the top. The interior concrete is placed in position by means of skips, so arranged as to deposit the contents as close as possible to the concrete previously deposited. Between this abutment and the old north pier of the existing harbour entrance a sea-wall exists, built by the late Mr. James Walker as engineer, in which a row of cast-iron sheet piles were driven at the toe of the outer slope between the wall and its apron. Messrs. F. and H. F. Higgs built, in Upper Thames Street,

A WAREHOUSE WITH A RIVER WALL

going down about 10ft. below the river bed, which was easily effected by means of the usual cofferdam of 12in. piles planked each side with clay puddle between, notwithstanding the fact that in sinking the other foundations a brick sewer running parallel to the river, about 40ft. from the bank and at about 15ft. down, constructed by the District Railway Company to drain their tunnel, was encountered. At Stratford the premises built by this firm were against one of the many tidal cuts in that district, hence a river wall had to be constructed. This Messrs. Higgs managed with light piles and single planking, with tarred and tongued joints bolted outside the piles, a construction sufficient to resist quiet water of no great depth. The Horse Shoe Wharf in Upper Thames Street, built by Messrs. Holland and Hannen, was erected in 1888 and 1889 for Messrs. Pilkington Bros., glass manufacturers, by Messrs. Francis Chambers and Son, as architects. The frontage of this warehouse is about 82ft., the river wall going to a depth of 30ft. below the average high water level, the basement floor being about 6ft. below high water level. In excavating for the foundation the strata passed through was made ground 12ft., wet mud, dirty gravel, old piles and previous foundations, shells and slit, lastly, clean ballast. In order to build the river wall, a cofferdam was formed by driving in two rows of 12in. by 12in. pitch pine sheet piling 6ft. apart. The piles were strapped together and the rows securely laced together with iron ties. The space between the sheeting being filled in with clay puddle, and the whole construction firmly shored from the ground at the back. A shield was provided for in the dam at shore level as a precautionary measure for draining off, as the tide receded any sudden rush of water that might have accumulated within the dam through extraordinary flood or other tides. In this instance the whole area of the basement, occupying between 15,000 and 16,000 square feet, was excavated at the same time. A deep sump hole was formed, and a steam chain pump kept constantly going to keep the excavation clear of water until the permanent river wall was constructed. It may be interesting to note that while getting out these excavations

THE OLD KENTISH RAG FOUNDATIONS

of Baynard's Castle, which occupied the site in the time of Queen Elizabeth, were discovered. The river wall of Brook's Wharf, Upper Thames Street, was built tide work by Messrs. Holland and Hannen. A sound foundation was obtained at a depth of 14ft. below the level of the shore, but no record has been kept of the class of soil passed through. The excava-

tion, concrete, footings, &c., were carried out in short lengths, as in underpinning, during the time the tide was out, and the work done was carefully covered up or cased in before the water reached it. The casing of brickwork, &c., was in no way watertight, but was sufficient to prevent the washing action of the tide. This is an economical method of constructing a river wall, but of necessity rather slow, and can only be adopted in particular cases. In 1886 the same firm constructed a quay wall to their own property in Nine Elms Lane, according to the accompanying section. The length of wall was about 100ft., and height about 18ft.; this was also carried out tide work as in the previous case, but is constructed entirely of Portland cement concrete. This is a very inexpensive form, costing between £4 and £5 per foot run complete.—Mr. Matt Garbutt, in proposing a vote of thanks to Mr. Walmisley, alluded to "sundry very interesting failures" in building which had occupied attention lately, and remarked that it was quite time architects made up their minds to give their first attention to structural requirements of a building as against the artistic. No doubt when foundations were carried down to a great depth a greater weight could safely be placed upon the soil than when the foundations were nearer the surface, because there was not an equal chance of a lateral spread. In London buildings of a moderate size, built on clay, the weight ought not to exceed two tons per square foot.—Mr. J. H. Shaw seconded the vote of thanks.—Mr. H. H. Statham gave the great new church on the hill of Montmartre, Paris, in which case, when digging for the foundations was commenced, the ground was found to be of soft, loose stuff, necessitating expensive concrete pillars, as a practical illustration of the necessity of knowing the character of the ground before erecting a building.—Mr. E. Greenop, Mr. E. Olander (engineer, G.W.R., Paddington), Mr. A. G. Flower, and Mr. Hampden W. Pratt also took part in the discussion, the President remarking that he would have liked Mr. Walmisley to have said more about the shrinkage of clay, and also to have dealt with more ordinary sites than those of great warehouses.—Mr. Walmisley, in conclusion, acknowledged the vote of thanks.

LIST OF OFFICERS.

At the close of the meeting at which Mr. Walmisley's paper was read, the list of officers for the ensuing year, as resulting from the voting, was read. The number of sealed envelopes sent in was 292, and the number of valid voting papers was 235. The result of the election is as follows: President, Mr. G. H. Fellowes-Pryne; vice-presidents, Messrs. P. J. Marvin and A. S. Flower; committee, Messrs. R. S. Balfour, H. B. Creswell, Beresford Pite, T. W. Aldwinkle, jun., W. A. Pite, W. H. Seth-Smith, Banister F. Fletcher, A. H. Hart, Matt Garbutt, and H. A. Satchell; hon. treasurer, Mr. Hampden W. Pratt; hon. librarian, Mr. C. H. Freeman; hon. secretaries, Messrs. E. H. Sim and G. B. Carvill.—Mr. Beresford Pite proposed a vote of thanks to the president for his services during the past year. Mr. Pratt had done

MORE THAN ANY OTHER PRESIDENT

within living knowledge, for he had visited all the classes of the Association, had kept himself in touch with the Studio, and had sacrificed a great deal of his time most generously for the good of the Association. They were consequently in a healthier state than ever, and it would be found when the annual report was issued that their finances and classes had flourished.—Mr. G. H. Fellowes-Pryne, the President-elect, seconded the vote of thanks.—Mr. Pratt replied.—Other votes of thanks were passed: to the members of the retiring committee; to Mr. Pratt, as treasurer; to the librarians, Messrs. C. H. Freeman and E. W. M. Wonnacott; to the hon. secretaries, Messrs. Sim and Carvill; to the Royal Institute of British Architects, for the use of the meeting room; to the visitors of the School of Design; and to the Technical Education Board, for the facilities granted to the Association in connection with workshop demonstrations.

Professional Items.

ABERDEEN.—The latest addition to the public buildings of the city is fast progressing towards completion. Occupying a commanding site at the junction of Union and Skene Terraces, the new Union Club and hall form an admirable finish to the architectural effect that is fast beautifying one of the best thoroughfares of the town, and has besides the broader effect of adding a worthy feature to the Architecture of the city. The mason work of the building is now all but completed, there yet remaining but the upper part of the hall's north gable and certain finishing touches to other parts of the fabric. At present the roofing of the club block is in progress, and the covering in of the hall will be begun almost immediately. The latter operation will prove a heavy piece of work, as the framework of the roof is to be of iron. Internally, the structure is also being pushed forward, and the plasterer will soon be at work in the club block. The cost of the building will be between £9000 and £10,000.

BRIGHTON.—The new Bible Christian chapel, Stanford Avenue, Brighton, has been opened. The building is in the Early English Gothic style of Architecture, of semi-cruciform plan, with nave and two wide transepts, and apsidal end. The window openings are mostly in narrow lancet lights and are glazed with simple patterns of delicate-tinted antique cathedral glass. The chapel is placed over the schoolroom. Internally the walls of the chapel are finished in plaster of a soft drab colour relieved by beads around the window openings and sunk mouldings of a light tint. The very comfortable pews and much of the other woodwork are of pitch pine carved and polished. In the rear are a good sized stewards' vestry and a minister's vestry. Mr. E. J. Hamilton, Brighton, was the architect, and Messrs. Saunders and Sons the contractors.

DISS.—The new Church Hall at Diss has been opened. The hall, which is situated at the entrance to Mere Street, is about 56ft. in length and 25ft. in breadth, with open timbered roof and a floor laid with wood upon concrete. The elevations of the buildings are faced with selected flints, and the corridors, dressings, and chimneys and other architectural features are formed with Cossey brickwork. Mr. Arthur J. Lacey, Diocesan Architect, designed the building, which has been erected by Mr. Ludkin, of Banham.

DUMBARTON.—After three years' work the new passenger station at Dumbarton has been completed. The station consists of two island platforms. Each platform has a complete suite of waiting and other rooms. The architect is Mr. Bond, of the firm of Messrs. Babbie and Bone, civil engineers, Dumbarton and Glasgow. The work has been carried out by Messrs. Robert M'Alpine and Sons, to the designs of Messrs. Foreman and M'Call, C.E., Glasgow, and is stated to have cost between £50,000 and £60,000.

GLASGOW.—Mr. T. Duncan Rhind, A.R.I.B.A., 44, Queen Street, has been assumed by Mr. Hamilton Paterson, architect, as a partner in the firm of Messrs. Hamilton Paterson and Watson, architects and surveyors, 10A, George Street, Edinburgh.

The memorial stone of the new buildings which are being erected in Renfrew Street, Glasgow, in connection with the Glasgow School of Art, has been laid. The new buildings have a frontage of 250ft. and a depth of 77ft. At present only a portion of the scheme as contemplated is being carried out. When finished, the school will be one of the best equipped of its kind in the country. The buildings now in course of construction comprise three floors. The basement flat is devoted principally to the applied arts and modelling, technical studies, and architecture. On the ground floor are the ornament and design sections, while on the floor above are the life and painting classes. There are also

private studios for the staff, as well as lecture-room accommodation. Mr. John Keppie, Glasgow, is the architect.

LEEDS.—The new lavatories in connection with the City Square improvements were opened to the public a few days ago. The whole of the fittings have been prepared from special designs, and have been carried out in glazed fireclay and earthenware by Messrs. Doulton, Twyford, and the Farnley Co. The walls and arches are lined with cream coloured glazed bricks, with a dado of coloured glazed bricks. The faience work in the arches, &c., carrying the deck lights, has been carried out by Mr. Whitehead. The mosaic floors have been laid by Messrs. de Grelle, Houdret, and Co. The joiners' work is executed in teak, and varnished. The whole of the lavatories are lighted by electricity. The ventilation is carried out by Blackman's electric fans, and is designed to change the whole volume of the air four times every hour. The women's lavatories are designed with private dressing rooms, &c., which are fitted up with every modern convenience. This is the first attempt to provide first-class accommodation in these lavatories for the public. The granite work in connection with the city square improvements has been carried out under the superintendence of Mr. William Bakewell, architect for the Corporate Property Committee, Leeds. Mr. Henry Whiteley has acted as clerk of the works.

MORECAMBE.—Hest Bank, on the shore of Morecambe Bay, situated some 2½ miles north of Morecambe, is showing considerable development. A Yorkshire syndicate that recently acquired a large area of lands is pushing on with building operations. The district is already provided with a sewerage system and Lancaster water. There is no doubt that in a few years Heysham, Morecambe and Hest Bank will be joined, but Lancaster's lateral development almost promises to out-distance Morecambe in linking up to Hest Bank. The eastward extension of the Morecambe promenade (the Victoria esplanade) is now perfectly complete.

NEWCASTLE.—The Erskine Presbyterian Church, Rye Hill, Newcastle, was opened last week. The new church has been erected on the site of the old Erskine church from designs of Messrs. Badenoch and Bruce, and has accommodation for 500.

OLDSWINFORD.—A new chancel has been added to St. Mary's Church. The tower witnesses to the antiquity of the church, and Mr. Chatwin, of Birmingham, the architect entrusted with the designs for the new chancel, thinks it not unlikely that there are remains of Norman work within the present casing of the old tower. The original church, which was taken down (with the exception of the tower and spire nearly sixty years ago, was a very ancient structure, and one, moreover, of very picturesque exterior, judging from the plates of it which are extant. During the present century five other churches have come into being in the old ecclesiastical parish of Oldswinford. A well-proportioned arch now divides the body of the church from the chancel, the roof of which is wagon-headed. The style of Architecture is that of the Decorated period. The chancel is faced externally with red Broomsgrove stone, and inside the dressings are of Bath stone. The side chancel aisle forms a south chapel, which will be used for early celebrations of the Holy Communion and other services. The contract has been entrusted to Messrs. Collins and Godfrey, of Tewkesbury.

PITLOCHRY.—The Committee are inviting competitive designs for the proposed public hall for Pitlochry. The conditions bear that the hall is (with a gallery) to seat 600, to be of native stone from Aldour Quarry. The total cost is not to exceed £2100, exclusive of boundary walls, seats, and architect's fee. The designs are to be lodged with Mr. Hugh Mitchell, solicitor.

ROTHERHAM.—The consecration of a new Masonic Hall at Rotherham took place last week. Viewed from the street, the block is imposing in appearance, forming a notable addition to this principal thoroughfare. On the street level are three shops, that in the centre being designed for the occupation of the owner. It includes a café, with ladies' room and kitchen in the rear. An arcade leads to a large public hall. The hall, which will seat 370 persons, has a polished oak floor. Ante-rooms and cloak rooms are provided, and a side gallery over the corridor forms a promenade, and leads to a supper room capable of seating 100 persons. Over the shops and café are three offices and a workroom. The second floor comprises the Masonic rooms, consisting of a lodge room, a large ante-room, and a supper room. Accommodation for a caretaker is provided on the third floor, and a lift from the kitchen communicates with the various supper rooms and corridors below. The front elevation of the buildings is of Stoke stone, and the window heads are filled with open Gothic tracery. The work has been carried out by Mr. Richard Snell, of Rotherham, from the plans and under the superintendence of Mr. E. Ike Hubbard, of Rotherham. Warming apparatus has been fixed by Messrs. Wright Bros., of Sheffield.

ST. IVES.—Foundation stones of a Methodist chapel and school buildings for St. Ives were laid last week. The spire will rise to a height of 82ft., while the length of the chapel will be 84ft., and the width across the transepts 53ft., providing accommodation for 450 in the body, and 100 in the gallery over the entrance lobby. The chapel will have open timbered roof of pitch pine, the seatings will also be of pitch pine, and the floor will be of wood blocks laid on concrete. Minister's and choir vestries will be provided. The school will adjoin the chapel, and comprise lecture hall, classrooms, and large schoolroom with open pitch pine roof. Preparations will be made in the basement for heating the chapel and school by hot water. The total cost, including the land and the heating apparatus, is estimated at £3500, and the work has to be finished by May 1st, 1899.

WARREPOINT (Ireland).—Warrepoint Parish Church has been improved. The present improvements include the strengthening of the tower and raising it, rough-casting the whole church in cement, and providing a new bell. The contract for the alteration of the building was carried out by Mr. Alexander Wheelan, Newry.

WEST BRIDGFORD.—The chapel which has been erected in Musters Road was opened a few days ago. The main design is in the fifteenth century period of Gothic Architecture, the chief entrance being at the base of the tower, which has an individuality and character quite its own, though in perfect harmony with that which it surmounts. Provision has been made for a clock. The windows to the east and west are conspicuous for their rich and deeply-recessed tracery. The site being almost square, the chief difficulty experienced by the architects in designing the interior was to obtain the idea, or appearance, of length, and this they succeeded in doing by keeping the north and south aisles wide and low, which consequently gives a narrower width to the nave, in proportion to which it has considerable length. The architects (Messrs. Brewill and Baily, of Nottingham) have carefully avoided the cold interior so apparent in the majority of chapels by using stained and varnished colourless woodwork, and have enriched the building by a beautifully painted roof, and the walls, being a rich chrome, give a warmth of colour which adds so much to the peculiar charm of ecclesiastical buildings. The exterior is of hammer-dressed Coxen stone, with fine Hollington stone for all dressings. The interior is treated with Corrigrit Corsham Down Bath stone. The seating capacity is 720. The contract has been executed by Mr. Wm. Maule, of Nottingham, and the decorations are the work of Mr. H. B. Spencer, of West Bridgford, supervised by the architects.

Under Discussion.

ANCIENT GLASS.

A party connected with the Glass-sellers' Company recently paid a visit to Godalming, in order to view the site of some old glass works in the neighbourhood. At the conclusion of the inspection a paper on the "Ancient Glass-making Industry in the Neighbourhood" was read by the Rev. T. T. Cooper. Mr. T. Lampard Green, the Master of the Glass-sellers' Company, presided. The lecturer showed maps of the district indicating the positions of the ancient works, and also exhibited specimens of Brode glass and Roman glass.

ARCHÆOLOGISTS IN SOMERSETSHIRE.

The Northern Branch of the Somersetshire Archaeological Society held a meeting at Stanton Drew a few days ago. Attention was first directed to the megalithic remains on land belonging to Mr. S. B. Coates, and having turned down the farm lane a short distance beyond the manor house, the archæologists were soon endeavouring to trace the circles, the largest of which had originally thirty stones or more, twenty-seven being still traceable. Many of them are underground, though in dry weather traces of these are easily recognisable. The spots whence some of the monoliths had been removed were traced. The leader of the party stated that in one instance, near the "Avenue," where a block was missing, he had probed the soil to about 6ft., and found the earth loose and a quantity of grit. His theory was that an agricultural show was held in the field some years ago, and the poles used had been thrust into the ground. When the party had strolled among the megalithic remains they repaired to the church, in order to listen to a paper read by the Rev. H. T. Perfect, who, in speaking of the megalithic remains of that parish, said the stones were of the rudest character, whereas at Stonehenge there were marks of scientific knowledge, one huge stone being made to rest on others with artificial grooves, so that the stones there were of more recent date than those at Stanton Drew. He was not aware that there was any authority for the stones being Druidical remains. It was not unreasonable to believe that, though the Druids might not have actually raised those monuments, yet, finding them in existence with great superstitions attached to them, they might have used them for their own purposes—religious, social, and political—with similar missionary ends in view as the early Christians were said to have when they converted some of the old heathen temples into Christian churches. The church was next described. The structure had gone through great changes, and but little of the earlier buildings remained. The upper part of the tower as far as the bells was taken down in 1847, and not rebuilt to its former height. The lowest part of the tower belonged to the thirteenth or fourteenth century. The interior of the church, too, had been much altered since the fourteenth century. In the wall they saw the old spiral staircase which led to the roof-loft in front of the old chancel. When the plaster was removed in 1889 traces of a text in old English black letter were to be seen over the upper doorway of the staircase, and remnants of coloured scroll work above, running along under the wall plate. In 1847 the central arcade was removed about 3ft. to the north, making what was then the narrower now the wider of the two aisles. The bosses on the roof, Caroline or Jacobean, were worthy of notice. In the north wall of the old chancel were apparent signs of a thirteenth century window; it was not known when the old chancel was surrendered and the new one built. In 1889 the interior of the church was entirely rearranged, excepting structurally, and decently furnished. The visitors before they left the village were pointed out an old dwelling known as the Bishop's House, because it is stated that episcopal courts were once held therein. Early in the eighteenth century either that or the church farm appeared to have been occupied as a nunnery.

Enquiry Department.

ARTIFICIAL CURLING PONDS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you please inform me where I could get information about the making of an artificial curling pond of cement—the depth of water to be about $\frac{1}{2}$ in. or $\frac{3}{4}$ in.?—Yours faithfully,

CURLER.

The only work with which we are acquainted that makes reference to the subject is "Skating and Curling," one of the Badminton Library series published by Longmans and Co., Paternoster Row, price 10s. 6d. There is a chapter in this containing practical hints for the construction of artificial rinks. It might be to your advantage to communicate with the builder the Glaciarium in Chelsea.

SMOKE.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I often call in my rambles at a roadside hotel, where the bar is in the parlour. The landlord is at his wits' end to discover an efficient way of dealing with the tobacco smoke. May I ask you for advice? There is a bay window. The chimney projects into the room, and has two gas brackets, one on each side, over the mantelpiece. I advised the landlord to try two funnels over these gas lights, with horizontal tubes running from them into the chimney-corners and up each corner, inside the open chimney, with two tin tubes running up the chimney to the top. Whether these would answer when there is no fire supplying the necessary heat to cause the smoke to ascend is the doubtful question.—Yours, &c.,

"GAS."

An excellent object-lesson is furnished by the hotel parlour referred to by our correspondent. Annoying as the excess of tobacco smoke may be, it merely affords an indication of more injurious, though less pungent, impurities in the air of the room arising from an absence of proper ventilation. The remedy is to be found in the adoption of means by which fresh air may be supplied and vitiated air removed without draught. This being done, the hygienic conditions will be in every way improved; not only will the smoke be carried away, but with it vapour and carbonic acid from the occupants, and the products of combustion from the gas lights. Commercially, the results should be equally satisfactory to the landlord, as facilities will be provided for dealing with the smoke from a larger nightly number of cigars, and, moreover, neither "ramblers" nor residents visiting the hotel will have their smoke-producing powers impaired by the enervating and insidious effects of an impure atmosphere. Without further information as to structural conditions, it would be impossible to state the precise methods best calculated to attain the desired results. Under similar circumstances, it is frequently found advantageous to fix air-inlet tubes or panels on the walls, and air-outlet ventilators in the smoke flues, dimensions being proportioned to the volume of air required. Assuming the existence of adequate air-inlets, the plan suggested by our correspondent would be beneficial if put in operation on a proper basis. The heat furnished by two ordinary gas burners, aided by natural warmth from the occupants of the room, should be ample for the creation of an up-draught, without the assistance of a fire in the grate. The pipes should discharge their contents so as to warm the entire column of air in the flue; sharp bends must be avoided, and the pipes ought to be of iron instead of tin, owing to the low melting point of the latter metal. In order to obtain satisfactory results, the diameter of the pipes must be governed both by the capacity of the room and by the height of the flue. If too small, the pipes will be unable to remove the volume of air necessary for adequate ventilation. As exemplifying the absence of ventilation in most dwelling houses, the case in point is a fairly typical one, but, if treated with due account of the considerations mentioned, there is no reason why all cause of complaint should not be satisfactorily removed at a moderate cost.

Correspondence.

REFORMING THE BUILDERS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Some matters which have been much emphasised of late in connection with the building trade are the way in which contractors shirk the responsibility of the buildings they undertake to erect, and the way in which our buildings are erected, even by large and well-known contractors. Go almost where you will, and the same tale is told by architects and clerk-of-works—though these functionaries are not always what they might be themselves—of how Mr. So-and-So, the contractor, has tried many schemes to introduce inferior materials. The excuse for the contractors is always the same, and that is competition; and they will tell you how they must undertake the work at prices they know they could not accept if honest work were to be the rule throughout, and so a few bad and unprincipled contractors in the beginning have dragged down an honest host in the end. We are continually hearing of workmen who do not satisfy their employers, of contractors who do not execute honest work, and of the superiority of the work done in the Middle Ages over that of to-day. In fact, to a close observer, the whole of the building industry, from the architect's work down to that of the labourers, seems to badly want reorganising, and the morals of the work seem to be in a very unhealthy period. Surely to design, to watch over, and execute a handsome edifice is food enough for the most brilliant of minds, and high enough to satisfy the most worthy ambition. Yet, in spite of what might be obtained from good work in the way of pleasure at having taken a part in its execution, the trade generally is contented to accept the work from the side of £ s. d. only.

We have room for many reforms in our age, and surely some of us are waiting eagerly for the time when once again our building trade may become fit for honest men. I am quite aware that we have good builders who are straightforward men, but they are so very few that it is hard to find them. I sometimes wonder where the buildings of the present century will be in two hundred years time, and fancy that it will be the buildings of the Middle Ages and the newly-erected buildings that will cover the land; most of those we now see will have gone and been replaced. Not only does bad workmanship and bad material

mean short-lived erections, but it means that we are living in constant danger of having our roof falling on our heads.

I should eagerly welcome any reformation in the trade by which I get my living. Let us have no more cut-throat estimating, but rather, I would suggest, that the builders form an association and agree to execute honest work. If no other scheme can be suggested a list of prices might be kept, so that instead of one builder obtaining work because his price was lower than others, it would be his method of execution that gained him the patronage.

When the employees have been reformed it will then be quite an easy matter to alter the position of craftsmanship of the day so as to favourably compare with that of long ago. We grumble at the men, and yet the conditions under which they toil (apart from monetary matters which are very favourable) is not conducive to their exerting themselves to become skilled craftsmen.

I sincerely regret having lived in an age which is advanced on the past in many ways, and yet an age in which, I believe, the building trades have sunk to their lowest level. I know something of the things of which I speak, having been engaged in the trade for many years, and having held positions ranging from mechanic to an employer of labour. Hoping this letter may promote discussion which may be of advantage to us.—I remain, yours truly,

“LOUIS ERWOLD.”

The Turriff Public School is to be enlarged. The plans for the reconstructed building have been prepared by Messrs. James Duncan and Son, architects, Turriff.

A LOCAL GOVERNMENT BOARD inquiry has been held in reference to Truro City Council's application for sanction to borrow £1250 for works of paving.

The Walton-on-the-Naze pier extension works are now being pushed on with all rapidity, and the pier-head is being formed, at a distance from the shore of 2500ft.

The memorial stones in connection with the new Congregational chapel at Hednesford were recently laid. The chapel is to accommodate 300 persons, and will cost close on £1000.

A NEW wing has been added to the Batley and District Technical School. The building, which has been erected from plans prepared by Mr. H. B. Buckley, of Batley and Leeds, is of solid stone, and is uniform with the remainder of the Cambridge Street structure.

KEYSTONES.

THE new church of St. Silas, Blackburn, has been formally opened.

A BILLIARD-ROOM, specially designed by Mr. R. T. Hookway, architect, has been added to the Bideford Conservative Club.

ACTIVE preparations are now in progress for the demolition of Dunkeld House, Dunkeld, the residence of the late Dowager-Duchess of Atholl.

A LARGE stained-glass window is to be erected in Lasswade parish church. The design selected is that of “The Last Supper,” and the window will cost about £400.

THE ceremony of laying the foundation stones of a new Wesleyan chapel at Elmswell was performed recently. Messrs. Eade and Johns, of Ipswich, are the architects. The builders are Messrs. Hogg and Son, of Coney Weston, near Ixworth.

THE restoration of the tower of St. Leonard's Church has just been completed. Certain internal work of improvement in the ancient edifice has also been carried out. The work of restoration of the tower had been in hand nearly two years.

THE extension which the premises of the Guildhall School of Music on the Victoria Embankment are to receive shortly will add to the institution a complete theatre with dressing-rooms and all accessories, and thirty new class-rooms as well. The cost is expected to be about £22,000, which is within £5000 of the sum spent on the present building when it was erected by the Corporation in 1880.

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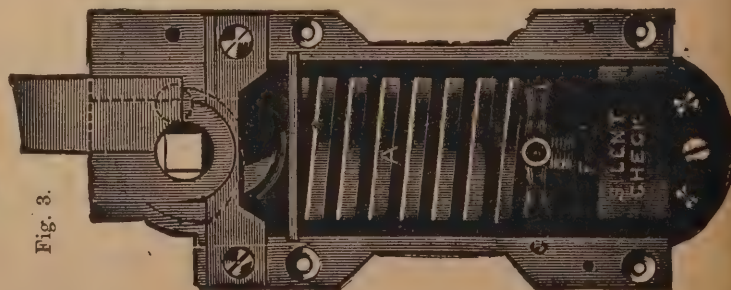
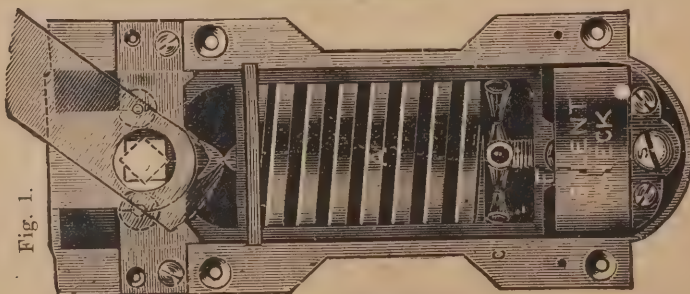
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SUPPLEMENT FOR

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JUNE 8TH, 1898.

Builders' Notes.

THE Metropolitan Tabernacle is still a heap of ruins, and the date for the commencement of the rebuilding operations has not yet been settled. It has, however, been decided to make the main building somewhat smaller than before, and to increase the number and seating capacity of the various additional class-rooms and vestries. It is calculated that the total cost will be £42,000.

THE work of enlarging the London and North-Western Railway Station at Crewe, and providing a complete duplicate of lines through it, is being pushed on with the utmost speed. One thousand men are now at work in the excavations tunnelling, and this number will be greatly augmented as soon as there is additional room for them to work.

THE River Wear Commissioners are now considering two schemes for the extension and deepening of the Sunderland docks, one of which, it is estimated, will cost about £100,000, and the other double that sum. The construction of a huge graving dock or pontoon, capable of accommodating the largest vessel afloat, is also under consideration.

At the Guildhall, before Mr. Alderman Smallman, Messrs. E. Lawrence and Sons, Wharf Road, City Road, were summoned for having contravened the Building Act, 1894, by making certain alterations at 2 and 4, Cripplegate Street, without the consent of the London County Council. It was asserted that separate sets of rooms had been adapted to be tenanted by different persons without the floors and principal staircase being constructed of fire-resisting materials. It was further alleged that there was an omission to make the floors and principal staircase of fire-resisting material.—Mr. Seagle Berry, in support of the summons, said it was of the utmost importance, especially after the lessons taught by the great fire in Cripplegate, that the provisions of the Building Act should be complied with, more particularly with regard to those sections dealing with fire-resisting materials. The building in question was erected for one occupation, but alterations were made subsequently in order that the place might be let out to various tenants. It would appear that only the basement and first floor were supplied with fireproof material. There were for the buildings two staircases—one going from the basement to the top floor, and the second leading only to the first floor. Now, though

the building was originally intended for one occupation, it was let out in separate tenements.—Mr. Edmund Woodthorpe, surveyor for the Northern Division of the City, said he had never given his consent to the alterations made in this building. The work done to render them fit for separate occupation comprised the placing on the ground floor of a girder, on which a 14in. wall had been built, so entirely cutting off the ground floor and basement from the other part of the building. In answer to the Alderman, the witness said there was only one staircase that was of any use for the whole of the building. It was "adopted," but not "constructed," for two separate buildings. There were four or five flues on each floor, and such could be used for fires or ventilating shafts.—Mr. Mallinson, for the defendants, did not dispute the facts, but held that the section of the Act did not apply to the case, and that the alterations complained of had virtually made the premises into two distinct buildings. It was, he urged, essentially a warehouse, whereas the section of the Act under which the defendants were summoned referred to sets of offices and chambers. The floors were let as a whole, and were not divided. With regard to the other matter, the place had been made into two separate buildings—one part having no connection with the other.—Mr. George Vickery, architect, said the place was put up for a warehouse, each floor being destitute of any division.—The Alderman said, having carefully considered the case, he had come to the conclusion to dismiss the summons, without costs. He hoped the Council would ask for a special case, as he would be most happy to grant one.

THE Executive of the Society of Carpenters and Joiners, in their official monthly report to the branches, which now number 738, state that the unprecedented successes in respect to the amicable and satisfactory settlement of various trade movements have been established. They further say that advances of wages have been conceded by employers at Castleford, Caterham, Coalville, Cromer, Colwyn Bay, Liverpool, Lynn, Lincoln, Mansfield, Preston, Rushden, Leeds, and Gravesend of one halfpenny per hour, and that at Birmingham an advance of a halfpenny per hour will come into effect next October, all overtime to be paid for at the rate of time and a half at Leicester. A reduction of hours and increased payment for overtime, upon the recommendation of the Board of Trade arbitrator, has been agreed upon at Whitby; an advance of 2s. weekly has been conceded, and alteration of hours has also been effected at

Edinburgh, Leeds, Stockton, Carlisle, Maidstone, and Bournemouth. The strikes now in progress at Blackburn and Newport (Mon.) are alluded to, and the opinion is expressed that employers will soon tire of the difficult and unprofitable occupation of seeking for hands.

AN action is down for hearing at Edinburgh in which James Golligly, apprentice bricklayer, sues G. and E. Cousin, railway contractors and builders, Waverley Market, Edinburgh, for £1500 damages for personal injuries. On 18th March last the pursuer was in the defendants' employment at the erection of the North British Railway Hotel, Waverley Station. A scaffold 63ft. had been erected, and the pursuer was working near its base when it was blown down, and he was buried among the wreckage. His injuries were so severe that his left arm and leg had to be amputated. Damages are claimed on the ground that the scaffolding was defective. It is said to have been too slim. The bolts and nails were of inferior strength, and, having regard to its height and exposed situation, it ought to have been composed of stouter beams and battens, and of properly seasoned and durable red timber. For practical purposes it was quite unnecessary to have had so high a scaffolding. If a structure of such a height was required, it should, the pursuer says, have been fixed by cable or guy ropes to the ground or buildings at its different sides, and the defenders are said to have been guilty of negligence in failing to have this done. The defenders deny fault, and say that the scaffolding fell owing to no fault in its design or construction. Everything that human skill or foresight could suggest was done to ensure its stability. It was built on the most approved plan by the most competent workmen, and all the material used in its construction was of the very best. The day when the accident happened was a day of extraordinary storm and wind, accompanied by occasional gusts of terrific force and violence. It was owing to one of these sudden squalls having struck the crane and the scaffolding that they fell.

MAJOR-GENERAL CROZIER, Local Government Board inspector, has held an inquiry at the Croydon Town Hall into the application of the Corporation for sanction to a loan of £124,582, for the erection of a new borough lunatic asylum at Warlingham, Surrey. Subject to the present application being granted, the Corporation hoped to commence the building in about a month's time.

Underground Water Supplies.*

By JOHN C. THRESH, D.Sc., M.D.

RECENT outbreaks of epidemic disease, due to polluted water supplies, had demonstrated in a terribly emphatic manner that there was either much wilful carelessness, which required to be rebuked, or much ignorance which required to be dispelled. The discoveries of bacteriologists had proved that these water-borne diseases were due to specific organisms, and these organisms might gain access to, and be carried by a water otherwise organically pure, as well as by an organically contaminated water, although the latter water would almost certainly be more liable to specific pollution, and therefore be more dangerous. Underground water was derived from that portion of the rainfall which passed by percolation into the subsoil. In this country nearly the whole of the exposed surface of the permeable strata was under cultivation, and on account of the facility with which water was obtainable, the population thereon was considerable.

SUBSOIL WATER

must therefore be contaminated at its source, and were it not that there were powerful natural agencies at work capable of producing perfect purification, underground waters would be too dangerous to be utilized for public supplies. Where such water was collected in close proximity to houses, from wells sunk in a sewage sodden subsoil, it was notoriously liable to pollution, and was a prolific cause of the dissemination of disease. The records of the outbreaks of typhoid fever and cholera in this country were sufficient proof of that. These impurities, however, were not carried far in a compact permeable subsoil, although in a fissured stratum they might be carried very considerable distances. During the progress of the polluted water through the subsoil the organic matter became broken down, and finally oxidised or burnt up, the ashes (carbonates, chlorides; phosphates, sulphates) alone remaining to afford evidence of the previous contamination. The

PARTICULATE MATTER,

including the micro-organisms, was more or less completely removed by the process of natural filtration implied by the percolation, and it seemed certain that specific organisms gaining access to the subsoil water speedily perished. There was no record of any outbreak of typhoid fever being caused by underground water taken from a wisely selected and properly protected site. The investigations of Pettenkofer, the researches of Hanser, and the recent experiments of Martin and Robertson all tended to prove that the typhoid and cholera bacilli could only flourish near the surface and in polluted soil, and Fraenkel had shown that the subsoil, even where the soil above had been grossly contaminated for a long period, was quite free from germs. That result, the author stated, he had recently been able to confirm in the examination of sand taken from various depths below the ground surface. At 4ft. very few organisms were found; below 5ft. none were discovered. These facts supported Koch's statement that "we have no reason to keep out of consumption the subsoil water which can be found nearly everywhere. On the contrary, we cannot find

A BETTER FILTERED WATER,

and one more protected against infection. Although the use of water from shallow wells sunk in populous neighbourhoods was not to be commended, there was very little doubt that in many such places a perfectly safe water could be obtained from the subsoil, from a properly constructed well, with clean immediate surroundings. Shallow wells, supplying only a few houses, drew water from an exceedingly limited area, the cone of depression rarely exceeding 5ft. or 6ft. in diameter, and it was the ground surface over that cone which required special protection. A shallow well yielding 45,000 gallons of water per day, and

* *Resumé of a paper entitled "The Protection of Underground Water Supplies" read before the Society of Engineers.*

depressing the water level 9ft., would produce a cone of depression with a base about 34ft. in diameter in a sandy subsoil. Round such a well there should be a protective area with a radius of 30ft., upon the surface of which no contaminating matter should be deposited, and which should be so guarded as to prevent the public having access. Encircling this should be an outer zone, which might be used for grazing purposes, but not otherwise manured. The area of this outer zone would have to be decided upon in each case after a due consideration of all the factors involved, such as the contour of the ground, the direction of flow of the ground water, the depth and fluctuation of the water level, &c. In certain cases an elliptical area would be preferable to a circular one, especially

IN THE CASE OF SPRINGS.

Where collecting channels fed the well, these should be not less than 10ft. below the ground surface, and included within the protective area, and within the inner zone of that area if possible. Where wells were sunk in fissured strata the form and extent of the protective area would require even more careful consideration, and should include the surface at which the fissures were most likely to outcrop. The water from the more freely-flowing fissures should from time to time be examined to ascertain whether any show signs of contamination, and if, after a heavy rainfall, the water became in the slightest degree turbid, danger was indicated. In the construction of deep wells the greatest care should be taken to exclude subsoil water, and, further, an area round the well should be protected, so that if any subsoil water did gain access, it would be free from the possibility of specific pollution.

THE USE OF THE BORE TUBE

as the pump suction pipe was not to be commended, since the external atmospheric pressure would force air or water through the most minute aperture. Where the outcrop of the stratum yielding the water was within a few miles, it should be subject to examination, as impurities entering fissures might travel such a distance. Whether underground water be drawn from a deep or superficial stratum, the chief factor in guarding it from pollution was the provision of a protective area round the well or spring, under the absolute control of the purveyors of the water, the inner portion of the zone immediately surrounded the source being so protected that neither tramps, hop-pickers, nor the general public could gain access. Existing sources of supply should be examined, and steps taken, if necessary, to secure adequate protection. Where, unfortunately, protection was impossible, it would be better to voluntarily abandon the works than wait until an outbreak of disease aroused public indignation, and compelled their abandonment.

At the monthly meeting of the Society of Public Analysts, held at Burlington House, Dr. Matthew A. Adams (Medical Officer of Health for Maidstone) read a paper on water supply in relation to the recent epidemic.—In the discussion which followed, Dr. J. W. Washbourn, Dr. Childs, Dr. Pakes, and Mr. Stoddart alluded to the bacteriological aspects of the matter, it being admitted by Dr. Washbourn that although bacteriological examination, like chemical analysis, often showed definite evidence of animal or sewage pollution, it could hitherto in no case be said to have resulted in the actual detection of the typhoid bacillus, even in water, clearly responsible for the dissemination of typhoid.—The matter was also discussed, mainly from the chemical standpoint, by Mr. Otto Hehner, Mr. Allen, Dr. Voelcker, and Mr. Cassall.—The president of the Society (Dr. Bernard Dyer) referred to the assistance often afforded by bacteriological methods of examination, however imperfect they might yet be in the confirmation of chemical results in the analysis of water, saying that the water analyst who did not familiarise himself with and make use of bacteriological methods deprived himself of a material aid in interpreting the admittedly more definite results of purely chemical analysis.

THE WELSH WATER SCHEME.

RESERVOIR CONSTRUCTION.

WORK is now being rapidly pushed forward in connection with the Frankley Reservoir included in the Birmingham Water Scheme. Hitherto public interest in the Welsh water scheme has been chiefly directed to the Elan Valley, where the great reservoirs are being constructed for impounding the waters of two important tributaries of the River Wye, and to the aqueduct by which the new supply is to be taken to Birmingham, and large portions of which upon the Welsh side of the Severn have already been constructed. Now, however, operations have been commenced nearer Birmingham, at Frankley, in connection with the provision of

A DISTRIBUTING RESERVOIR

and filter beds to receive the water as soon as the aqueduct is opened. Mr. F. W. Macaulay, who represents Mr. Mansergh, in the capacity of resident engineer, has given a few general particulars concerning the works that are now being carried out. The elevation of Frankley reservoir and filter-beds is sufficient to enable the greater part of the water-consuming district to be supplied by gravitation, but for the very highest portions there are to be additional reservoirs at Warley and at Northfield, to which water will be raised by pumping. The conduit from Wales will reach the top of the valley on the eastern side of the site, quite close to St. Leonard's Church, and will pass directly under the foundations of Frankley Manor House. The water will flow from it into a gauge chamber and inlet basin, whence it will descend a flight of steps into the reservoir of semi-circular shape, and with a

CONTAINING CAPACITY OF 200 MILLION GALLONS.

A portion of the valley head will approximately form the rounded side of the reservoir, while the lower side will be a dam or embankment about 35ft. in height and upwards of 1600ft. long. The radius of the reservoir is, in fact, to be 811ft. 6in., and its water area rather over 25 acres, the depth being 31ft. 6in. This semi-circular reservoir will be divided by a wall into two quadrant-shaped sections, so that one or both may be used as circumstances require. The walls, which will have a curved face, will be formed of concrete faced with blue brick. Between these materials will be placed a skin, half an inch thick, of asphalt. The floor of the reservoir will consist of 9in. of concrete, with a layer of asphalt on the top. Concrete and brick will be used for the inner half of the dam, but it will be widened and strengthened by an embankment, the thickness at the base of the two combined being 160ft. "Pens-tocks" or floodgates will turn the water into either division of the reservoir, or send it round by

A CULVERT DIRECT TO THE FILTER BEDS.

The draw-out chambers will be about midway round the side of each section. From the culverts the water will pass to a series of quadrangular filter beds, forming a sort of flight of steps, for some distance down the valley. Those to be constructed at the present stage will be eighteen in number, and will lie below the southern half of the reservoir, leaving others to be constructed hereafter when the demand for water increases. The eighteen beds will form cisterns, varying in size from 150 square feet to 220 square feet, and affording a filtering area of 67,000 square yards. Mains and valves will allow the water to be directed into all or any of these filters, in which it will pass through layers of sand and gravel. This process will additionally purify the water, and will also somewhat modify its softness. It will be collected at the foot of the entire system in a pure water tank, from whence it will flow into the city mains, or be pumped to the high-level reservoirs at Warley and Northfield. One of the first works that has been carried out has been the provision of a railway from Rubery, to bring materials to the site. The Water Committee have been fortunate in acquiring at the Rubery end of the line a large quarry,

affording an abundant supply of quartzite, admirably adapted for the making of concrete. The ground on the site of the reservoirs is of red marl, and the excavated material will practically be the quantity required to make the various embankments.

A PRELIMINARY WORK

of no little importance has been the laying in of a network of drains, so as to prevent the bed of the reservoir being disturbed from beneath by local springs. These drains empty themselves into Merritt's Brook, which, through the reservoir estate, will be provided with a new and direct bed. This is already in course of construction. It may be interesting to mention that the operations involve the utilisation of three-quarters of a million cubic yards of earthwork and over 150,000 cubic yards of concrete, while the pipes that have to be laid will weigh close upon 5000 tons. Frankley Lodge, which has been acquired as part of the estate, has been taken over as a residence of the contractor, and its farm buildings have been converted into fitting shops. There are also being provided on the upper part of the ground crushing and cement sheds and an electric light installation. After the preliminary operations structural work will be carried from the lower level upwards, and already embankments have been made showing the outline and position of the bottom filter-bed. The advantage of the upward process is that the drainage can all be made secure in relation to that which comes last—namely, the reservoir itself. The contractor for the work, including the railway, is Mr. A. Kellett, of Ealing, and the contract price, including the railway but exclusive of filtering material, is £315,000.

POKESDOWN URBAN DISTRICT COUNCIL have completed arrangements for a scheme of main drainage on plans prepared by their surveyor, Mr. Ingamells. Pokesdown adjoins the borough of Bournemouth to the east, and has control over a large area, including nearly two miles of sea frontage and pine woods. The drainage scheme will include sewage and surface water, which will be discharged into the sea nearly a mile beyond Southbourne Pier. It provides for a future population of 20,000. The tender of B. Cooke and Co. for the outfall works at £3708, and of Saunders and Co. for the sewers at £13,412, have been accepted.

PEOPLE are beginning to inquire when the long-projected scheme for completing the Dover Harbour works will be completed. Of course, the operations are bound to proceed slowly; but so many years have elapsed since its commencement that one might be pardoned for getting impatient. It is more than fifty years ago that Governments began to talk about it. When they are completed, however, the works will make Dover almost equal to Plymouth and Portsmouth as a fortified naval station. Twenty battleships, besides several smaller vessels, will find accommodation for berthing there. Altogether some three millions sterling have been expended on Dover, so the result ought to be satisfactory.

THE progress of the experiments with the bacteriological method of treating sewage at Knostrop was considered at a recent meeting of the Leeds Corporation Streets and Sewerage Committee. Mr. Harding, chairman of the committee commissioned to watch the experiments on behalf of the Corporation, reported on the work so far accomplished, and suggested the advisability of providing additional filtration beds in order to expedite the test. Having regard to the varied nature of the experiments, it was felt that by merely using the tanks now in existence too much time would be occupied in arriving at safe conclusions as to the efficacy of the Diben process in its application to Leeds Sewage. Mr. Diben also communicated to the committee his opinion that shallower beds should be used. Up to date the expenditure on the experiments, including professional fees, amounts to rather less than £4000, and the committee decided upon a further outlay not exceeding £5000 to provide additional filtration beds.

Surveying and Sanitary Notes.

A LOCAL GOVERNMENT BOARD inquiry has been held at Retford, concerning the proposed drainage scheme prepared by Mr. Melliss, and the application for the sanction of a loan of £40,000 for carrying out the same.

TORQUAY TOWN COUNCIL has accepted a recommendation from the Harbour Committee "that a sum not exceeding £2000 be expended in repairing a portion of the foreshore of the Haldon Pier by piling, and backing with stones and concrete."

At a recent sitting of the Water Commission in Westminster Town Hall, Sir A. Binnie, engineer to the London County Council, put in an estimate for bringing water from Wales. The Yrion would yield 121,000,000 gallons a day, the Towy 44,000,000, giving altogether 165,000,000 gallons. Reservoirs and headworks would cost £2,190,000; aqueducts, 162 miles in length, to convey 200,000,000 gallons a day, would cost £7,760,000; terminal works at Elstree, £1,911,000, and filters £1,653,750, making a total for works of £13,514,750. Adding £597,250 for law and Parliamentary charges, the total would be £14,112,000. The Thames could not be made to yield at any reasonable cost 147,000,000 a day in addition to the 185,500,000 already sanctioned. He estimated the cost of reservoirs at Staines to supply 300,000,000 gallons per day at £15,000,000.

AN extraordinary general meeting of the Metropolitan District Railway Company was held at Westminster Palace Hotel, Mr. J. S. Forbes presiding. The meeting was for the purpose of sanctioning a Bill before Parliament conferring powers on the Metropolitan Railway Company for the ventilation of their railway, and upon the Metropolitan Railway Company in relation to the working of their undertakings by electrical power, and upon this Company's and the South-Eastern Railway Company with respect to certain lands at Cannon Street, &c. The chairman went into details of the Bill, and explained that, notwithstanding any powers they obtained, they would not proceed with the change of traction until they found it quite safe to go on, and they would wait until they had the report of two eminent engineers who were going into the matter, and also until after the Central London Railway Company had been opened. The resolution was adopted.

THE Royal Commission for inquiry into the methods of treating and disposing of sewage has been gazetted. The members are: The Earl of Iddlesleigh, C.B. (Chairman); Sir R. Thorne Thorne, K.C.B., Medical Officer of the Local Government Board; C. Phipps Carey, lieutenant-colonel and hon. major-general on the retired list; C. Philip Cotton; Michael Fraser, M.A., Professor of Physiology, University of Cambridge; Thomas Walter Harding, retired lieutenant-colonel Auxiliary Forces, with honorary rank of colonel; Thomas William Killick; William Ramsey, Professor of Chemistry, University College, London; James Burn Russell, M.D. and M.Ch.; Fred James Willis, Secretary. By the terms of the reference the Commission is to inquire—(1) What method or methods of treating and disposing of sewage (including any liquid from any factory or manufacturing process) may properly be adopted consistently with due regard for the requirements of the existing law for the protection of the public health and for the economical and efficient discharge of the duties of local authorities; (2) if more than one method may be so adopted, by what rules in relation to the nature or volume of sewage or the population to be served, or other varying circumstances or requirements, should the particular method of treatment and disposal to be adopted be determined; and (3) to make any recommendations which may be deemed desirable with reference to the treatment and disposal of sewage.

Trade and Craft.

NEW REFUSE DESTRUCTOR AT NORWICH.

The new refuse destructor at New Mills, Norwich, erected by the Horsfall Furnace Syndicate, Limited, of Leeds, is now in full operation. The steam required for sewage pumping purposes is supplied by the destructor.

A RUST-PROOF PAINT.

A rust-proof paint, called Anticorin, which has attained very considerable success on the Prussian State railways, and also on several German steamboat lines, is being introduced in London. It is stated to be proof against acid and sea water, and to be made in any shade or colour. It can be used for the interiors of boilers.

MESSRS. B. WARD AND CO.

Messrs. B. Ward and Co., of 15, Great George Street, Westminster, S.W., have recently patented a new stair tread which promises to become very popular. It is described as Ward's Artificial Stone-leaded Stair Tread, and consists of the introduction of lead discs in the step. The lead is cast in the form of a grid, so that each dot is, as it were, tied together; it is $\frac{3}{4}$ in. deep. Among the advantages claimed—and rightly so, we believe—for this invention are that it prevents slipping, there being no surface to polish; that it is neat and ornamental, and at the same time durable; that it can be adapted to any steps, and effects a considerable saving over stone; and that there is no danger of the lead dots working out. These stair treads have already been used at the extension of the Architectural Museum, at Messrs. Donald Currie and Co.'s new offices, and elsewhere. It appears to be a patent that will be largely in demand for stairways in business houses and buildings, or wherever there is much traffic.

ARE ELECTRIC COMPANIES DOOMED?

Electric light shares have been very depressed lately on the adverse action of many London vestries. This fall in values will, however, be purely nominal in comparison with the "slump" that will take place if a rumour now going around the City proves true. It is stated that a Syndicate has been formed to acquire certain inventions for generating electricity by air. The discovery, if reports are at all to be relied upon, is one of the most important and far-reaching of the century. With a small apparatus, weighing only a few pounds, and without the aid of gas or steam power or dynamo, sufficient current can be generated for lighting any ordinary dwelling-house. Experiments conducted over a period of some months are said to show that very striking results can be obtained by this method, and that the current developed remains quite constant. By means of this invention it is expected that the supply of electric current will be brought within the reach of all without the necessity for taking it from corporation or company mains, and at a trifling cost as compared with the present charges for current.

MESSRS. GEORGE TROLLOPE AND SONS.

Messrs. George Trollope and Sons inform us that in consequence of Her Majesty's Commissioners of Works having acquired and pulled down No. 15, Parliament Street, Westminster, which has been occupied by their firm since 1777, they have opened new offices at 14, Mount Street, Grosvenor Square; and at 5, Victoria Street, Westminster. The new offices will be in direct telephonic communication with Messrs. Trollope's other offices.

A SHEET-STEEL sewerway is one of the latest evidences of the steel age. It is being put down in Jersey City, U.S. About 260ft. have been laid; the total length will be 1850ft. The metal is stated to be less expensive than a three-course brick sewer of the same diameter, namely, 5ft.

PRACTICAL CARPENTRY AND JOINERY.*

BY GEO. ELLIS.

(Continued from page xxi.)

VIII.—DOOR FRAMES & FINISHINGS.

FIG. 125 shows the method adopted for forming the hanging jamb of a recessed or "warehouse-hung" door. It is in frequent use in business premises, where the door has to be kept constantly open. As will be seen on reference to the drawing, where the dotted

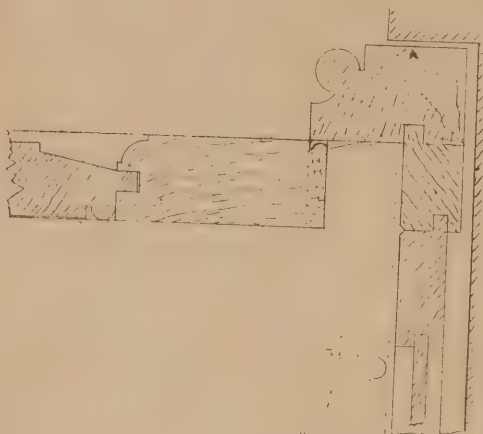


FIG. 125. PLAN OF RECESSED DOOR.

lines indicate the position of the door when open, an unbroken surface is then presented by the door and frame, the former having the appearance of the lobby enclosure, as its front edge fits closely up to the screen or swing door. The jamb is built up in two pieces, grooved and tongued at the joint, as this is both stronger and more economical than working it out of the solid; a tenon is cut on the outer part of the post, the inner or rebate back being tongued into the head. The door is beaded on the edge with a bead of the same size as the knuckle of hinges, and these are let in flush. When the door is closed the bead is hidden behind the jamb, and when open it breaks the joint. The rebate of the hanging post must equal the thickness of door, plus an eighth of an inch for clearance, and the lobby framing finishes flush with it, this framing being covered during the day, is usually made plain; the opposite piece, however, is made to correspond with the door, as is also the soffit framing.

The three principal varieties of jamb linings are "plain," "framed," and "double-framed,"

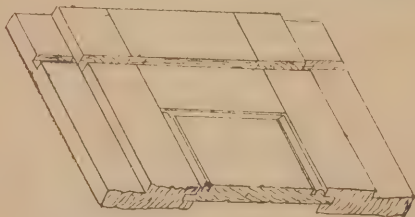


FIG. 127. END OF SOFFIT LINING.

these terms defining the method of construction. A complete lining for an opening consisting of two jambs or sides and a soffit or head, is called a set of linings. The term "plain" is applied to any lining, however it may be ornamented, that is made up of one flat board, or surface. If a rebate is formed on one edge to receive a door, it is further distinguished as single faced or rebated, and if similarly treated on the other edge, double ditto. The flat surface against the edge of which the door rests is called the stop. In inferior work these are nailed upon the surface

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of a stouter and wider board, so as to form a rebate, without the labour of working it, and they are sometimes left loose until the doors are hung to facilitate that operation when the latter are made in winding.

The isometric sketch (Fig. 126) shows a set of double rebated plain linings for a sin. wall, out of 1½ in. stuff, also a double set of grounds in situ, a portion of the latter being broken away to show the construction. The linings are grooved and tongued together at the head, and nailed in the manner shown in Figs. 127-128; the tongue in the rebate is often omitted when the latter is less than 2 in. wide.

Grounds are light frames made to surround all openings in walls that are to be plastered, for which they act as a gauge and a key; the various finishings, architraves, linings, &c., are also fixed to them. They should be framed perfectly square, the front edges square with the face, the back edges bevelled slightly under to form a key for the plastering, and fixed plumb and parallel with the wall. Where double sets are employed the face edges should line with each other, and be tied together with cross pieces dovetailed in, called backings (see Fig. 126). The grounds should be securely fixed to joint pads or wood plugs, and are out of 1 in. stuff of such width that their back edges are ¾ in. behind the architrave. Fig. 129 shows clearly how they are put together.

After the grounds are fixed, and there is room in the opening, as in Fig. 126, the soffit is notched out as shown, and nailed to the backing piece in the middle. The jambs are then cut tightly between head and floor, the tongues entered into the grooves, and the lower ends forced back into position, where they are secured to grounds and backings. It occasionally happens that the grounds are not

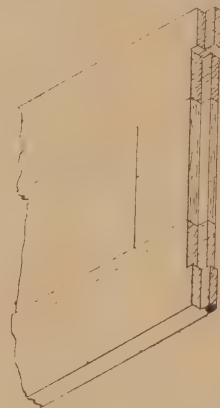


FIG. 128. TOP OF JAMB LINING.

made exactly to the size of the linings, and a space exists between them. When the door is hung there is nothing but the backs of the rebate to hold the screws, sometimes not quite an inch thick. This is insufficient, and blocks about 1½ in. wide by 4 in. long are fixed at the back in the position the hinges will come, to receive the screws, as shown on the right side of Fig. 126.

Another form of plain lining suitable for a thicker wall is shown in Fig. 130. This is known as a skeleton lining; so called because the stop is fixed to a framework of stout square stuff. Two square frames to form the rebates are fixed together with cross rails; upon these the stops are fixed, and should overhang the inner edges of the frames ¼ in. When the wall is of such thickness that the stop would exceed 1 in. in width, it becomes necessary to frame the linings and insert panels as shown in Fig. 131, which is a sectional elevation of the top end of a framed jamb and soffit, with grounds, lintel, and architraves. The proper method of putting these frames together is indicated in Figs. 127, 128; the grooves would be stopped in polished work, but there is no necessity to do so in painted finishings. The head on no account should be cut between the jambs, as any yielding of the backings would produce open joints, and excellent fixing is obtained by driving folding wedges between the lintel and head immediately over the jambs, thus avoiding the necessity of nailing

the latter, which in the case of a strong piece of stuff will often cause a shake to appear.

Fig. 131 is a horizontal section through one jamb, and the finishings of a double-framed lining, showing also a portion of the soffit in plan. In this variety the stop is framed and panelled; the rebates formed on the edges by separate pieces of square stuff, framed to them by double grooving. The tongues should be well fitted and left dry, to permit subsequent shrinkage, without disturbing the architrave. This method forms a first-class lining, all the



FIG. 131. DOUBLE FRAMED LINING.

rails can be tenoned through and wedged, as the ends will be hidden by the outer frames. These frames being substantial just where required, afford a good fixing for the door and the construction renders secret fixing easy. If the stops are first fixed as a complete frame, buttons can be attached at the back, to turn into mortises in the backings, then the rebate pieces inserted covering all up and making a good finish. The moulding bordering a door or window opening is known as an architrave, if moulded on the back or extreme edge, as "double-faced," if made up in two widths, as double moulding. An architrave should not be fixed at both edges, for if so something must go when the wood shrinks, and it must be remembered that nothing short of absolutely sealing the pores of the wood, back, front and ends, will prevent shrinkage, and the drier the stuff the more readily will it absorb moisture from its surroundings to be evaporated in hot weather, with consequent reduction in the width of the stuff, and if this is not guarded

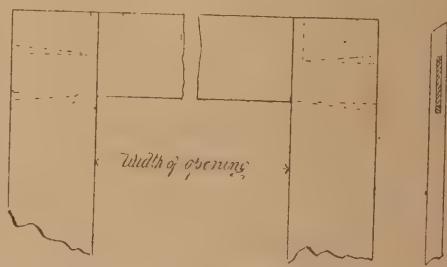


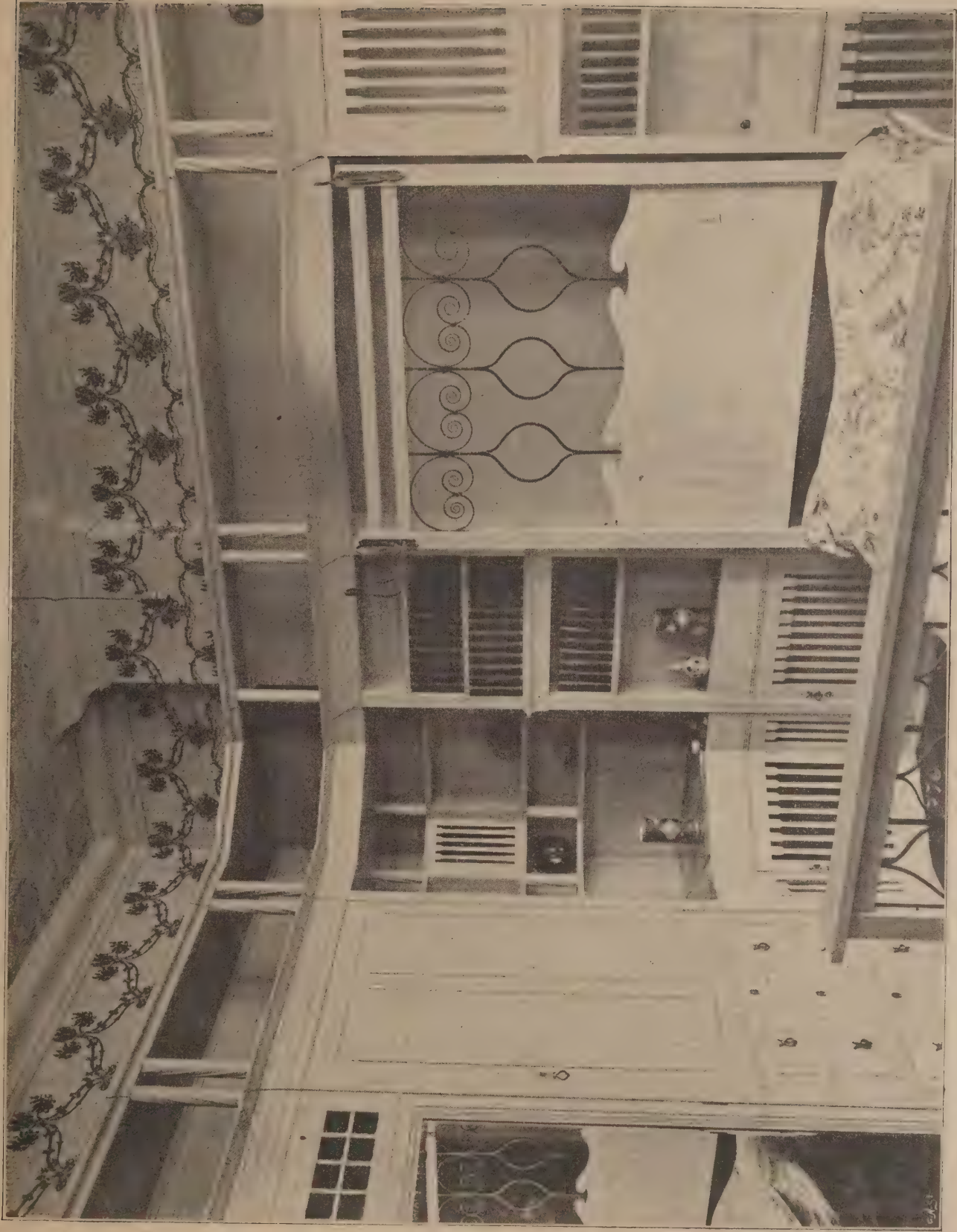
FIG. 129. CONSTRUCTION OF GROUNDS.

against, shakes or gaping joints will result. The best place to fix a narrow moulding is in the middle or near its thinner edge. The moulding should not be designed so as to be thin in the middle and thick towards its edges as it will inevitably curl off. No architrave should be made wider than 5 in. in one piece, but should be treated as in the left hand example of Fig. 118. This would be fixed through the two extreme edges, leaving the interior edges free to swell or shrink. In thick mouldings the mitres should be framed with mortise and tenon, or handrail screw and dowels. All mitres upwards of 4 in. long or ¾ in. thick should be ploughed and tongued, as there is little or no hold for glue in the end grain. It is advisable to provide blocks at the

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CHIMNEY CORNER AT 175, SLOANE STREET, W. DESIGNED BY FRANK STUART MURRAY.



BEDROOM AT 173, SLOANE STREET, W. DESIGNED BY FRANK STUART MURRAY.

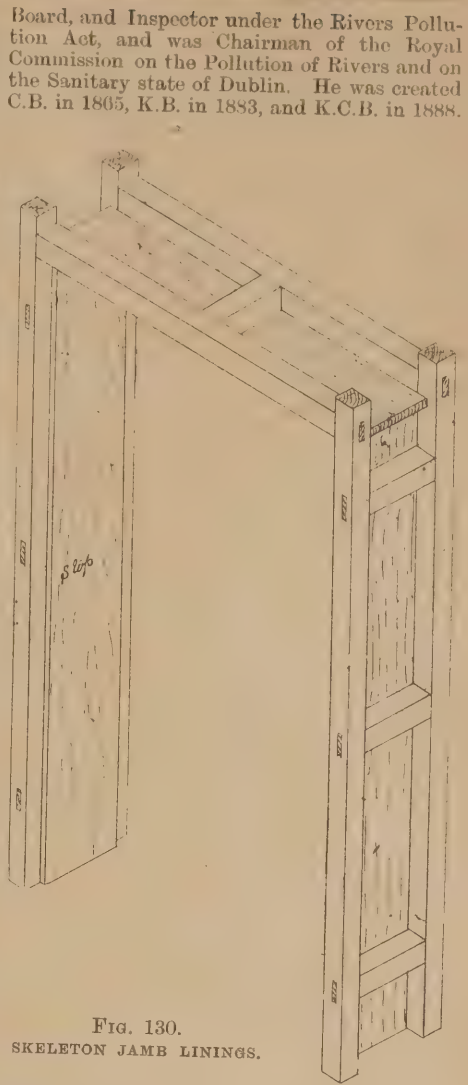
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feet of architraves to protect the mouldings from wear, a quarter of an inch projection from the outline of the moulding will be sufficient, and the block should be secured to the moulding by a dovetail tongue, driven in the direction of the grain and screwed at the back.

(To be continued.)

SIR ROBERT RAWLINSON, the distinguished sanitary engineer, died on Tuesday week in his eighty-ninth year, at Lancaster Lodge, Boltons, South Kensington. Sir Robert Rawlinson was the son of Mr. Thomas Rawlinson, mason and builder, of Chorley, and was born on February 28th, 1810. He learned the building business under his father, and afterwards worked as an engineer under Jesse Hartley and Robert Stephenson. Rising rapidly, he became successively assistant surveyor to the Liverpool Corporation and engineer of the Bridgewater Canal. In 1847 he devised a gigantic scheme to supply Liverpool with water from North Wales, but it was then thought too ambitious. He designed the hollow brick ceiling of St. George's Hall, the lightest work of that class existing. In 1848 he became one of the first inspectors under the Public Health Act, and as such made the first inspection (at Dover) and wrote the first report. He devised and established a new system of main drainage which is in use all over the world. In the Crimean War he went out as Engineering Sanitary Commissioner, and did a remarkable work in the way decreasing our Army's mortality then and since. Germany and America have warmly acknowledged their indebtedness to him in this respect. In the Cotton Famine he was commissioned to organise public works under Mr. Villiers, which he did with a remarkable financial and sanitary success attested by the Act which, in consequence, was passed enabling the issue of State loans to Sanitary authorities, and the triumphant working thereof. Sir Robert Rawlinson was for twenty-eight years a member of the Army Sanitary Committee, had been Chief Engineering Inspector under the Local Government



COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
June 11	Eggleston, Darlington—Erection of Fence	Parish Council	J. C. Hill, Eggleston House, Eggleston.
11	Bridlington Quay—Erection of Two Houses	J. Taylor	S. Dyer, Architect, Bridlington Quay.
11	Faygate, Sussex—Rebuilding Inn		W. Buck, Architect, Horsham.
11	Guildford—Erection of Dining Hall, &c.	Union Guardians	Peak and Lunn, 36, High-street, Guildford.
11	Lochfyne, Scotland—Farmhouse and Steading		N. Gillies, Architect, Lochgilphead.
11	Marytavy—Erection of House		H. James, Marytavy.
12	Alverston—Erection of Shed, &c., at Tannery	Randell and Porter, Limited	J. Arden, 2, Brock-street, Ulverston.
13	Sheffield—Erection of Electric Power Station	Tramway Committee	C. F. Wike, City Surveyor, Town Hall, Sheffield.
13	Keighley—Erection of House		Barber Hopkinson & Co., Craven Bank-chambers, Keighley.
13	Lossiemouth, Scotland—Shambles		J. Milne, Architect, Elgin.
13	Queenstown, co. Cork—Completing Custom House		H. Williams, Secretary, Office of Public Works, Dublin.
14	Stockport—Erection of Greenhouse	Parks Committee	J. Atkinson, Borough Surveyor, St. Petersgate, Stockport.
14	Yarm, Yorks.—Widening Bridge	North Riding County Council	W. Stead, County Surveyor, Northallerton.
14	Blackburn—Erection of School	School Board	Cheers and Smith, 24, Richmond-terrace, Blackburn.
14	Chorley, Lancs.—Alterations, &c., to Police Station	Standing Joint Committee	H. Littler, Architect to Committee, County Offices, Preston.
14	Northallerton—Additions to Registry Office		W. Stead, County Surveyor, Northallerton.
14	Willesden, N.W.—Underground Convenience	District Council	O. C. Robson, Offices, Dyne-road, Kilburn.
14	Ciliau Aeron, Wales—Erection of Church		Rev. L. Williams, Bedlwyn, Talsarn, E.S.O., South Wales.
15	Bury, Lancs.—Erection of Art Gallery, &c.	Corporation	Borough Engineer, Bank-street, Bury.
15	Ely—Erection of Bridge	Commissioners of Burnt Fen District	Archer and Son, Solicitors, Market-place, Ely.
15	Heywood, Lancs.—Erection of Store-room and Stables	Gas Committee	W. Whatmough, Gasworks, Heywood.
15	Southowram, nr. Halifax—Erection of Farmhouse, &c.		R. Berry, Architect, Arcade-chambers, Cheapside, Halifax.
15	Wakefield—Erection of Boiler House, &c.	West Riding Asylum Committee	J. V. Edwards, County Surveyor, Wakefield.
16	Worksop—Erection of Public-houses	Brewery Company, Limited	Surveyor's Office, Dock-road, Worksop.
16	Bridlington—Erection of Eight Houses	Messrs. Normall	S. Dyer, Architect, Bridlington Quay.
16	Halstead, Essex—Erection of Tramps' Ward, &c.	Union Guardians	Master of the Workhouse, Halstead.
16	Loughor, Wales—Erection of Chapel		D. Davies, Grocer, Upper Loughor.
16	Stoke Golding, Leics.—Erection of School	Church School Managers	Blackwell and Thomson, Halford-chambers, Leicester.
16	Annfield Plain, co. Durham—Schools, &c.	Trustees	D. M. Spence, Front-street, Annfield Plain.
16	Hertford—Police Station	Standing Joint Committee	U. A. Smith, 41, Parliament-street, S.W.
17	Swansea—Erection of Post Office	Commissioners H. M. Works	12, Whitehall-place, S.W.
17	Clapham, near Lancaster—Church Alterations		J. F. Carwen, Architect, Highgate, Kendal.
17	Moulshford, Berks.—Excavating, &c.	County Asylum Visitors' Committee	G. T. Hine, 35, Parliament-street, Westminster.
18	Manchester—Alterations, &c., to School	School Committee	Maxwell and Take, 41, Corporation-street, Manchester.
18	Cerne Abbas, Dorset—Erection of Bath-rooms, &c.	Guardians	J. Peacey, Architect, Dorchester.
18	Plymouth—Pumping Station	Corporation	J. Mansergh, 5, Victoria-street, Westminster, S.W.
20	Warrington, Surrey—Foundations of Asylum, &c.	Croydon Town Council	Borough Engineer, Town Hall, Croydon.
20	Knaresborough—School Buildings, &c.	Governors	Barrowcliffe & Allcock, Architects, Mill-st., Loughborough.
20	Grays—Erection, &c., of School Buildings	Governors of Palmer's Endowed School	C. M. Shner, 2, Walbrook, E.C.
21	West Ham, S.E.—Boundary Wall, &c., at Pumping Station	London County Council	Engineers' Department, County Hall, Spring-gardens, S.W.
21	Exeter—Enlarging Post Office	Commissioners H. M. Works	12, Whitehall-place, S.W.
22	Stockport—Erection of Laundry, &c.		Woodhouse and Willoughby, 100, King-street, Manchester.
25	Flookburgh—Erection of Cottages		J. Crow, Flookburgh.
27	Epsom—Superstructure of Asylum	London County Council	G. T. Hine, 35, Parliament-street, S.W.
28	Workington—Alterations, &c., to Infirmary		F. W. Jackson, Secretary, Infirmary, Workington.
29	London, S.W.—Nurses' Home at Infirmary	Wandsworth and Clapham Union	Lansdell and Harrison, 38, Bow-lane, E.C.
30	Newark—Alterations to Infirmary, &c.		Sheppard and Harrison, Architects, Kirkgate, Newark.
30	Addingham, near Carlisle—Church Restoration		G. Dale, Architect, Carlisle.
6	Tottenham, N.—First Section of Hospital	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
24	Belem, Para, Brazil—Slaughter-house and Yard, &c.	Municipality	Commercial Department, Foreign Office, S.W.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Alston, near Carlisle—Banking Premises	Banking Co. Limited	Johnstone Brothers, 39, Lowther-street, Carlisle.
"	Carlisle—Auction Mart, &c.	W. H. Lawton	J. Graham, Architect, Bank-chambers, Carlisle.
"	Castleton, near Rochdale—Eight Shops, &c.	Stanford and Co., &c.	G. A. Hammond, Architect, Rochdale.
"	Colchester and Brightlingsea—Workshops, &c.	School Board	C. E. Butcher, 3, Queen-street, Colchester.
"	Elland, Yorks.—Additions to Schools	W. H. Priest	H. W. Booth, Architect, King Cross, Halifax.
"	Fort William, Scotland—Distillery	Tottenham School Board	D. Cameron, Architect, Inverness.
"	Goldthorpe, near Doncaster—Sixteen Houses	Rural District Council	J. E. Dodds, 19, Baxter-gate, Doncaster.
"	London, N.—Erection of Two Schools	County Council	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
"	Spilsby—Erection of Offices	Union Guardians	Estate Offices, Spilsby.
"	Stone, Staffs.—Additions to Police Station	W. Stones Limited	W. H. Cheadle, Architect, Stafford.
"	Guildford—New Buildings at Workhouse		Peak and Lunn, 36, High-street, Guildford.
"	Chesterfield—Erection of Hotel		J. R. Wigfull, 14, Parade-chambers, Sheffield.
"	East Harling, Norfolk—Erection of Three Cottages, &c.		A. Gayford, Estate Agent, East Harling, Norfolk.
ENGINEERING—			
June 11	Bushy, Herts—Construction of Covered Reservoir	Colne Valley Water Company	J. Taylor, Sons, & S. Crimp, 27, Great George-st., Westminster.
" 11	Oakworth, Keighley—Construction of Reservoir	County Council	J. Judson and Moore, Architects, Oakworth, near Keighley.
" 11	Westacre, Norfolk—Erection of Bridge in Steel	Corporation	T. H. Heslop, County Surveyor, Norwich.
" 12	St. Helen's, Lancs.—Pumping Plant	Urban District Council	J. J.kland, Water Engineer, Town Hall, St. Helen's.
" 13	Ilford—Sludge-pressing Machinery	Corporation	J. Taylor, Sons, & S. Crimp, 27, Great George-st., Westminster.
" 13	Bury St. Edmunds—Engine, Boiler-house, Plant, &c.	Urban District Council	F. H. Medhurst, Westminster chambers, Victoria-st., S.W.
" 13	Goole—Gas Apparatus	Urban District Council	M. Dunn, Engineer, Exchange-buildings, Goole.
" 13	Nuneaton—Laying Water Mains, &c.	Urban District Council	J. S. Pickering, Waterworks Engr., Council Offices, Nuneaton
" 13	Stockport—Culverting a Brook	Sanitary Committee	J. Atkinson, Borough Surveyor, St. Petersgate, Stockport.
" 15	Salford—Sewage Tanks, &c.	River Conservancy Committee	Borough Engineer, Town Hall, Salford.
" 16	Chepping Wycomb—Precipitation Tanks	Guardians	T. J. Rushbrooke, Borough Surveyor, High Wycombe.
" 16	Islington—Three Weighbridges	Urban District Council	Offices, St. John-road, Upper Holloway, N.
" 18	Sunbury-on-Thames—Sewage Disposal Works	Corporation	J. Austie, 17, Victoria-street, Westminster.
" 21	Sheffield—Construction, &c., of Bridge	Corporation	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 21	Bournemouth—Electric Lighting	London County Council	F. W. Lacey, Borough Engineer, Bournemouth.
" 21	Erith, Kent—Supply, &c., of Electric Cables, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 21	London, S.W.—Supply of Engines, Dynamos, &c.	Urban District Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 22	Scunthorpe, Lincs.—Well and Borehole	Town Council	A. M. Cobban, Surveyor, Howe-street, Scunthorpe.
" 28	East London, Cape Colony—Electric Works and Plant	London County Council	Dyer and Dyer, 17, Aldermanbury, London, E.C.
" 28	Beckton, N. Woolwich—Construction, &c., of Engines, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 28	Erith, Kent—Converting Engines	Caledonian Railway Co.	Engineer's Department, County Hall, Spring-gardens, S.W.
July 4	Grangemouth, Scotland—Dock Extension	Ministry of Public Works	Sir J. W. Barry, 21, Delahay-street, Westminster.
July 4	Radomir, Bulgaria—Construction of Railway	Gas and Electric Lighting Committee	Commercial Department, Foreign Office.
" 7	Leicester—Supply and Fixing of Grids	Gas Committee	A. Colson, Engineer, Millstone-lane, Leicester.
No date.	Bingley, Yorks.—Supply of Boilers		G. D. Malan, Engineer, Gasworks, Bingley.
IRON AND STEEL—			
June 11	Urmston, Lancs.—Supply of Socket Pipes	Joint Drainage Committee	— Hooley, Council Offices, Croft's Bank-road, Urmston.
" 11	Oswestry—Supply of Railway Stores	Cambrian Railways Company	Stores Office, Cambrian Works, Oswestry.
" 13	Stockport—Providing Wrought-iron Hurdles, &c.	Sanitary Committee	J. Atkinson, Borough Surveyor, St. Petersgate, Stockport.
" 15	London, E.C.—Railway Stores	East Indian Railway Co.	A. P. Dunstan, Secretary, Nicholas-lane, E.C.
" 21	Leicester—Construction, &c., Iron Fencing	Estate and Burial Grounds Committee	E. G. Mawby, Borough Surveyor, Town Hall, Leicester.
Aug. 23	Coolgardie, Australia—Steel Pipes	Government of Western Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
ROADS—			
June 11	Slough—Making-up Streets	Urban District Council	Surveyor, 11, Mackenzie-street, Slough.
" 11	Wigan—Paving Materials	Corporation	Borough Engineer, Municipal Offices, Wigan.
" 11	Benfieldshire—Leading Materials	Urban District Council	J. Dixon, Surveyor, Council Offices, Benfieldshire.
" 11	Elgin—Carting and Metal Breaking	Town Council	A. A. Turfiff, Burgh Surveyor, Elgin.
" 13	Church, Lancs.—Street Works	Urban District Council	Surveyor, Council Office, Church.
" 13	Melksham, Wilts.—Footpaths	Rural District Council	F. U. Greenhill, District Surveyor, King-street, Melksham.
" 13	Reigate—Paving Works	Council	Borough Surveyor, Market Hall, Redhill, Surrey.
" 14	Willesden, N.W.—Wood Paving	District Council	O. C. Robson, Offices, Dyne-road, Kilburn, N.W.
" 14	Elmington—Making-up Streets	Urban District Council	G. E. Eachus, Town Hall, Lower Edmonton, N.
" 14	Epsom—Supply of Flints	Urban District Council	E. R. Capon, Surveyor, East-street, Epsom.
" 14	Kettering—Street Works	Urban District Council	T. R. Smith, Surveyor, Market Hill, Kettering.
" 15	Londonderry—Construction of Street, &c.	T. C. Wylie	E. E. Buchanan, 33, Shipquay-street, Londonderry.
" 15	Ashington—Concrete Footpaths	Urban District Council	A. Wool, Market-place, Ashington, Northumberland.
" 16	Eccles, Lancs.—Road Works	Highways Committee	G. W. Bailey, Town Clerk, Town Hall, Eccles.
" 17	Preston—Paving, Levelling, &c.		Borough Engineer, Town Hall, Preston.
" 18	King's Lynn—Road Works	Corporation	J. R. Fayers, 8, St. Nicholas-st., Market-place, King's Lynn.
" 23	Loughborough, Leics.—Supply of Granite	Urban District Council	Borough Surveyor, Town Hall, Loughborough.
" 25	Brierfield, Lancs.—Road Material	Town Council	J. T. Landless, Engineer, Station-buildings, Nelson, Lancs.
" 26	Aberdeen—Road Work		W. Dyack, Borough Surveyor, Town House, Aberdeen.
No date.	Christchurch, Hants—Road Works	Commissioners	H. A. Wood, Estate Agent, The Mart, Christchurch.
"	Grangemouth, N.B.—Whinstone Causewaying		A. and W. Black, C.E., Falkirk.
SANITARY—			
June 11	Abersychan, Wales—Sewer	Urban District Council	E. Cooke, Surveyor, Council Offices, Abersychan.
" 11	Lutterworth—Construction of Main Sewer	Rural District Council	J. C. Coates, Council Surveyor, Bitteswell, nr. Lutterworth.
" 14	Southampton—Sewerage Works	Corporation	W. B. G. Bennett, Borough Engineer, Southampton.
" 18	Plymouth—Pumping Station and Sewers	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 20	Totnes—Sewage Works	Corporation	W. F. Toltit, Borough Surveyor, Gate House, Totnes.
" 20	Walsall—Scavenging	Rural District Council	A. H. Lewis, 29, Leicester-street, Walsall.
" 20	Paddington, W.—Sewers, &c.	Vestry	Surveyor, Vestry Hall, Harrow-road, W.
" 21	Hale, Cheshire—Construction of Sewers, &c.	Bucklow Rural District Council	J. M'D. McKenzie, 7, Market-street, Altrincham.
" 22	London, W.C.—Bargaining away Slop, &c.	Strand Board of Works	Offices, 5, Tavistock-street, Covent-garden, W.C.
" 22	Stowmarket—Laying Pipe Sewers	Urban District Council	Pollard and Tingle, 31, Old Queen-street, Westminster.
" 25	Ashby-de-la-Zouch—Sewers, Manholes, &c.	Urban District Council	J. B. Everard, Millstone-lane, Leicester.
" 30	Chartham Downs, near Canterbury—Redrainage, &c.	Kent County Asylums Committee	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
No date.	Quorn, Leics.—Scavenging	Urban District Council	G. White, Rose Cottage, Quorn, Loughborough.
PAINTING AND PLUMBING—			
June 11	Abersychan, Wales—Painting Bridges, &c.	Urban District Council	E. Cook, Surveyor, Council Offices, Abersychan.
" 13	Aberdeen—Limewashing Courts, &c.	Town Council	Sanitary Inspector, City-buildings, Aberdeen.
" 13	Goole—Painting Works, &c.	School Board	H. Lindley, Clerk, Board Office, Goole.
" 15	London, S.W.—Painting, &c., Infirmary	Wandsworth and Clapham Union	A. N. Henderson, Clerk, Union Offices, St. John's Hill, S.W.
No date.	Milnrow—Painting, &c., Nine Houses		J. Leach, Longden-end, Littleborough.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 24	East Ham—Offices, Fire Station, and Public Baths	£105, £52 10s.	Urban District Council.
" 30	Rotherham—Plans for School Department	£15, £10	School Board.
" 30	West Bangor, N.B.—Asylum Buildings ... ..	... ..	Edinburgh District Lunacy Board.
July 1	Linslade—Plans and Estimates for Sewerage Disposal and Water Supply Schemes ... ..	... ..	Urban District Council.
" 1	Widnes—Laying-out Park, &c.	£35 15s., £10 10s., £5 5s.	Jubilee Commemoration Committee.
" 1	San Francisco Bay—Designs for University Buildings	£10,000 (divided in two competitions)	Trustees of the Phebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Fermyby—Schemes for Sewerage	£100, £50, £25	Fermyby Parochial Committee.
" 1	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
" 16	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BIRMINGHAM.—For alterations and additions to premises in Windmill-street, Birmingham, for Messrs. Wathes Brothers. Mr. William Hale, F.R.I.B.A., architect, 83, Colmore-row, Birmingham.—

Sapcote and Sons	2,183	T. Lord	21,974
Moffat and Sons	2,180	W. Bishop	1,774
R. Merton Hughes	2,121	E. Giles and Son*	1,757
Lidzey and Evans	2,025		

CHELMSFORD.—For a pair of villas to be built in King Edward's-avenue. Mr. R. Mawhood, architect, Chelmsford.—

E. West	21,000	W. Samma	2,857
F. Fincham	2,897	J. Gowers (accepted)	820

CROYDON.—For alterations and additions to the Board Schools, Beulah-road, providing additional accommodation in the boys' and girls' departments, making new cookery-room, and laying out additional playgrounds, for the Croydon School Board. Mr. Robert Ridge, architect, 12, Katherine-street, Croydon. Quantities by Mr. Richard J. and C. Bowyer.—

W. Akers and Co.	24,791	F. W. Sedgwick	24,249
J. Smith and Sons	4,745	E. J. Saunders	4,200
Huntley Bros.	4,450	E. H. Bulled and Co.	4,066

[All of Croydon.]
* Accepted, subject to the approval of the Education Department.

CYMMER (Wales).—For the completion of council offices, for the Glynorwg Urban District Council. Mr. G. F. Lambert, architect, Bridgend.—

James Hughes	2700 0	J. Jones	2519 15
Watkin Lewis	550 0	J. W. Jackson, Porth-	
W. Francis	530 0	cawl*	512 0

* Accepted subject to the approval of the sureties.
HUNSTANTON.—For erecting new house near station, for Mr. Walter Bratt. Mr. W. Jarvis, architect, Lynn.—

Geo. Chambers and Sons	2436	R. Shanks*	2394
Collins and Barber	430	F. Southgate	350

* Accepted.
HUNSTANTON.—For carrying out alterations to shop and residence, and the erection of new stabling at Somerset House, Hunstanton, for Messrs. Lambert and Sons. Mr. W. Jarvis, architect, Lynn.—

Rands and Son	2788 10	H. G. Rudrum	2530 0
Bardell Bros.	687 0	J. Chivers*	530 0

* Accepted.
HUNSTANTON.—For carrying out the restoration of sea wall and esplanade, damaged by gale, for the Hunstanton Esplanade Company, Limited. Mr. W. Jarvis, Lynn, architect.—

Philip Bone	2350 0	F. Foreman*	2298 0
Bardell Bros.	338 10		

* Accepted.
KING'S LYNN.—For work at No. 112, High-street, King's Lynn (rebuilding house, shop, and business premises) for Mrs. M. A. E. Howard. Mr. H. J. Green, architect, Norwich.—

Kerridge & Shaw	21,168 0 0	Collins & Barber	21,065 0 0
Robert Dye	1,133 0 0	Read, Wildbur, &	
Bardell Bros.	1,129 0 0	Co., Limited.	
W. H. Brown	1,120 17 6	King's Lynn*	1,035 0 0
Arthur Collison	1,082 0 0		

* Accepted conditionally.
LONDON.—For alterations and redecoration to 13a, Red Lion-square, W.C., for the Board of Governors of St. Paul's Hospital for the Skin and Genito-Urinary Diseases. Messrs. Clark and Hutchinson, architects, 28, John-street, Bedford-row, W.C.—

J. McMillan	2450	W. Tipton	2293
Parkinson and Son	385	J. Greenwood*	258

* Accepted.
LONDON.—For additions to the factory of the Lamson Paragon Supply Company, Ford's Park-road, Canning Town. E. Mr. T. Walker, architect, 5, West-street, Finsbury-circus.—

Chapman	25,989	Harris and Wardrop	25,597
Brown	5,912	Reason	5,479
Prosser	5,685	Duthwaite	5,437
Downes	5,610		

* Accepted.
LONDON.—For alterations and additions to the workhouse, South-grove, Mile End, for the Whitechapel Guardians. Mr. Bruce J. Capell, architect, 79, Whitechapel-road.—

Yorbury	28,930	Kiddle	28,142
Knight	8,700	Jerrard	7,989
McConnick	8,545	Reason	7,799
Jones and Groves	8,244	Sheffield	7,689

* Accepted.
LYNN.—For the erection of new shop and residence, High-street, King's Lynn, after fire, for Mrs. Spencer. Mr. William Jarvis, Market-square, Lynn, architect.—

Bardell Brothers	2949 0	Collins and Barker	2818 0
Foreman & Medwell	917 15	H. G. Rudrum*	810 0

* Accepted.
LYNN.—Accepted for pulling down and rebuilding shop and residence, No. 19 and 20, High-street, Lynn, for Messrs. Kendrick and Son. Mr. William Jarvis, architect.—

H. G. Rudrum			2864
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[No competition.]
NORTH ROSE (near Congleton).—For additions and alterations to the "Manor House," for Mr. E. Tootal Broadhurst. Mr. John T. Brealey, architect, Hanley and Leek. Quantities by architect.—

G. Roylance & Co. Lim.	21,988	James Heath	21,000
C. Cornes and Sons	1,800	John Worrall	1,566
Matthew Cooke	1,700	Joseph Worrall	1,530
Thos. Brown	1,625	Thomas Grace, Leek*	1,500

* Accepted.
PENGE.—Additions and alterations to 21, Beckenham-road, for the London and County Banking Company. Messrs. G. Elkington and Son, architects.—

C. Homewood	2711 10	Henry Lenev, Penge*	2585 0
Smye and Duncon	660 0		

* Accepted.
ST. ALBANS.—For the erection of six cottages, Culver-road, for Mr. Nathan Bell. Mr. Percival C. Blow, architect, St. Albans and Harpenden.—

Whitely and Jarvis	21,304	Bushell*	21,205
Sparrow	1,254		

* Accepted.
SWINDON.—For additions to the "True Heart Inn," Bishopstone, near Swindon, for Messrs. Godwin Bros., Belmont Brewery, Swindon. Messrs. W. Drew and Sons, architects, Swindon.—

J. Williams	2197 0 0	Lawrence and Co.	2335 12 6
Flewelling & Huck-		W. A. Moulding,	
son	355 0 0	Aldbourne*	334 7 6
Lawrence Bros.	352 0 0	Herring	325 0 0

* Accepted.
TWICKENHAM.—For the erection of new dining-hall, recreation room, class-room, tailor's shop, dormitory, &c., at Fortescue House, Twickenham, for the National Refuges for Homeless and Destitute Children. Mr. R. G. Hammond, architect, 16, Essex-street, Strand, W.C. Quantities by Mr. W. H. Elmore, surveyor, 9, Carteret-street, Westminster.—

I. Norris and Sons	22,456	J. W. Brooking	22,265
T. Hiscock	2,432	G. Wade	2,058
A. J. Batchelor	2,289	T. Nye, Ealing*	2,017

* Accepted subject to arrangement.

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R. I. B. A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

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Applications unaccompanied by references will not be noticed.

Firms whose names are already on the War Office list need not apply.

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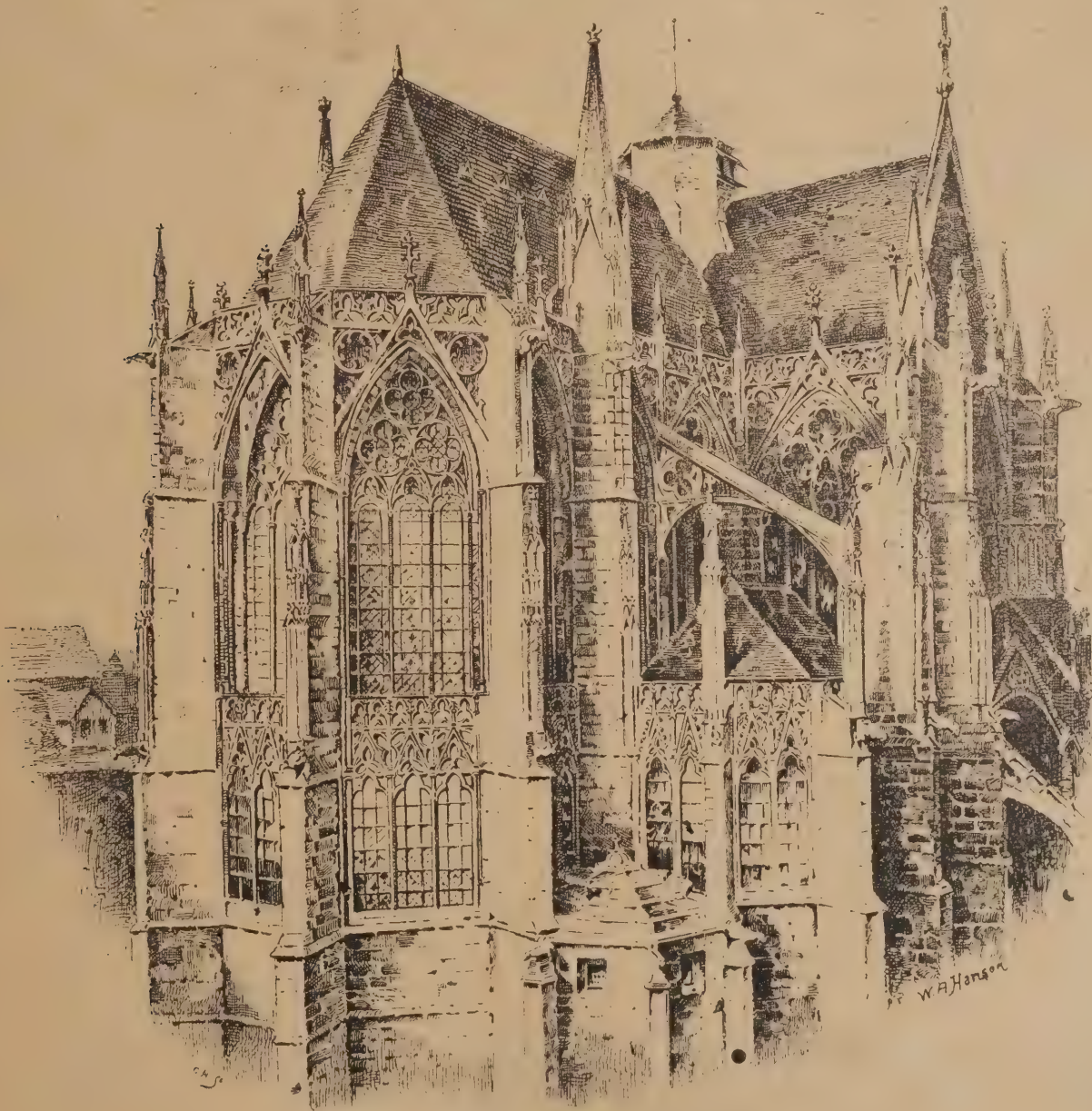
An Architectural Causerie.

Architecture at the Academy: A Suggestion.

A VISIT to the Royal Academy, during the Summer Exhibition, brings very forcibly to one's mind the inadequate representation afforded to Architecture com-

voted to painting, sculpture, and black-and-white drawing, and a single apartment only to Architecture. This is surely out of all proportion. Although there are some interesting designs and many beautiful drawings, it is entirely evident that this little room contains an altogether inadequate display of the best Architecture of the year. The greater part of the works hung are presentiments of unimportant buildings, often of mediocre design, and the meritorious examples are so insufficiently illustrated as to generally render them unintelligible. The architect must always labour under a disadvantage in any exhibition, in that he cannot show his real Architecture but only drawings of the same. These are but a means to an end, and if we would enjoy his work at its best, we must visit and study his actual works "in the round." Herein an architect is obviously handicapped when compared with the painter and sculptor, and much of his best work is consequently known only to a select few.

The remedy that occurs to my mind is not far to seek, viz., greater realism. If meritorious designs only were hung, space could be found for a more complete illustration of each subject, and to obtain the nearest and most faithful approach to reality, photographs of executed work should most certainly be admissible. A series of photographs, supplemented with plans and other geometrical drawings, is undoubtedly the best mode of rendering Architecture. Beauty of proportion, refinement and appropriateness of detail, effects of light and shade, and all the qualities that go to form a fine building, only excepting colour, are faithfully brought out in a good photograph. The use of perspective drawings or models would then probably be limited to proposed works, or, to use an expressive French word, *projets*. A well-considered scheme for admitting photographic monographs of good Architecture would have the effect of bringing to the public notice much of our best current work, and might even



CHURCH OF ST. URBAIN, TROYES.

[In Illustration of "A Summer Sunday in Troyes."]

pared with that of the sister Arts. At the outset it may be granted that painting and sculpture have greater living exponents, and are, therefore, deservedly more popular; still the fact remains that fifteen galleries are de-

Under the present conditions it is only to be expected that the general public, as well as artists themselves, should take far less interest in architectural exhibits compared with those of painting and sculpture.

induce some of our absentee architects to exhibit. It is much to be deplored that such men as Philip Webb and John Bentley have rarely, if ever, shown drawings at the Academy, and even architect-members of

this body themselves are frequently unrepresented. This must be ascribed to the unsatisfactory rendering that generally results, as well as to the time and trouble that is occupied in preparing special "show" drawings of executed work. Draughtsmanship and not fine qualities of architectural design, too often determine whether a drawing shall be hung, and it thus happens that mediocrity, made interesting by accomplished perspective draughtsmen, is hung to the exclusion of more meritorious work. As a consequence, much of our Architecture is unknown, not only to the public, but to many architects themselves, and even to members of the Royal Academy! In spite of the increasing interest that is now taken in matters artistic by so many of the cultured classes, an intelligent knowledge and appreciation of modern Architecture is rarely to be met with. Architecture requires an educated taste to be properly appreciated quite as much as painting, sculpture, or music. Greater space, a more careful selection, and realistic exhibits rendered interesting by the aid of photography, might go far to rouse the present apathy of the public, and certainly should create a greater appreciation of this art in the Royal Academy itself. It may be urged against my proposal that the galleries are already filled to overflowing, and that therefore it would be impossible to devote more space to architectural delineation. Personally, one feels very strongly that a higher standard of excellence, with the consequence of fewer pictures, would not only provide the necessary room, but be in itself a great improvement to the present condition of things. A gallery (not a *cul-de-sac*) devoted to the proper illustration of Architecture, should form an agreeable interlude to the ten or twelve hundred pictures that we are yearly expected to admire.

J. E. N.

On the Use of Stock Materials.

At the beginning of an architect's career—when the first client puts in an appearance and asks awkward questions—problems seeking immediate solution rise up and confront him. Among the first of these is the question, How far is it advisable to encourage and make use of stock materials in a building which is intended to be beautiful? It should be said here that the term "stock" is used in a limited sense, and is not meant to apply to stock articles of furniture, etc., but to runs of mouldings, battens, flooring, match-boardings, etc., where there is still scope for thoughtful arrangement without much alteration of the forms to hand. If the architect is "artistic," and wedded to the belief that no good can result from the combination of forms already in the market, his inclination will be to ignore the subject—and the materials. This is unfortunate, both for client and architect; but it is too often the rule that the architect who lays claim to being an "artist" is less familiar with the many ways in which materials are sent out than his commercially-minded brother architect. The chief reason for this ignorance seems to be that the "artistic one" is too frequently content to assume the impossibility of stock materials being utilised to a beautiful end, which is, perhaps, only another way of saying that while machinery holds the field no really great work can be accomplished. This is only half a truth, and while it is quite reasonable for an architect to regard present conditions as unfavourable to the pursuit of his calling, it is not wise to sit in an office waiting the advent of some wealthy and sympathetic patron—or the millennium. It is quite too negative a state of mind, and the sooner he dies and goes to Heaven the better. It is wiser, as Sedding says, "to suppose that machinery and its results will not be discontinued. Manufacture to-day cannot be

organised on any other basis. We had better clearly recognise this; better make life square with facts rather than rebel against the actual and inevitable." The commercial architect has long since availed himself of machine-made forms and the necessity of using them in building. Shapes, scantlings, and quality, in which materials are turned out by the manufacturer, are at his fingers' end; but he ignores, either from want of time or, more frequently, lack of ability, the possibility of converting them into pleasant and interesting results. The architect with the Liberty tie who could do this is handicapped from ignorance of scantlings. It follows that the man who both knows the ordinary forms in the market, and can make his own their possibilities, will be the most likely to produce the best results. It is safe to assume that no sensible architect desires to use machine work at the expense of handiwork, but it is suggested that, under present conditions, a thoughtful arrangement of stock materials can and does yield pleasing results. A room, providing it is kept ascetically simple, may be so designed, and, within certain limits, be very successful; but elaborate that same room with machine-made decoration of the very sumptuous or public-house style, and it becomes hideous.

G. L. M.

OLD CHURCHES AND HISTORIC MANSIONS.

WITH ANTIQUARIES IN GLOUCESTERSHIRE.

THE neighbourhood of Yate, in Gloucestershire, is prolific in old churches and historic mansions. The district was explored a few days ago by the Bristol and Gloucestershire Archaeological Society. Iron Acton, with its old Manor House was first visited. This residence of the Poyntz family appears to have been re-built in the time of Queen Elizabeth, and to have been considerably altered in the reign of Charles I. The large courtyard on the eastern side of the house is entered by a handsome gateway, in the spandrels of which, in low relief, appears the Poyntz crest. This arch was probably erected in the time of Charles I. The house, when occupied by the last of the Poyntzes, in the middle of the 17th century, appears to have consisted of a central building facing east and west, with north and south wings, the former of which remains. A hundred years ago a huge buttress was erected to protect the bulging walls; another has been added lately. The 15th century Perpendicular window, on the extreme left, is said to have lighted the chapel; but there is nothing inside to support the tradition. The church was next visited. The rector pointed out some of the prominent features of the structure. He directed attention to the fine preaching cross, the small

REMAINS OF THE OLD PARSONAGE

which still existed, the tithe barn, and stables of great antiquity, which were all objects of interest, though, perhaps, not so deserving of notice as that fabric of the church. He remarked, in glancing at the interior of the edifice, that, though some of the pews had been restored, the work of renewal was carried out with due regard to the character of the original fittings. He also called attention to the curious fact that nothing is in the centre of anything else, no arch is in the centre of any other arch. The church, which is dedicated to St. James the Less, consists of a western tower, a nave with porch, a south aisle which is continued eastward, and a choir. The church is probably about the same date as the cross; the lower part of the tower is, perhaps, somewhat older. On the parapet of the tower, looking toward the north, is the half-length figure of

A KNIGHT IN ARMOUR,

probably removed from the church. The church contains several Poyntz monuments; the oldest, an effigy of a knight in the armour

worn in the latter part of the reign of Edward III., probably represents John Poyntz, son and heir of the first Sir Nicholas Poyntz, and Maud, the heiress of the Actons. By his side lies the effigy of a lady unknown. Two encased slabs in the burial chapel of the Lords of the Manor commemorate Robert Poyntz and his first wife Anne. In the north-east window of the chancel is some fine fifteenth century glass. The middle light probably represents Edward IV., as in the same window is the falcon and fetterlock, a badge of that king. The value of royal badges in fixing dates has been, until of late, overlooked. On the left of the king is an ecclesiastic with a triple crown, and therefore probably a pope, and on his right a mitred bishop. Amongst other objects of interest in this church are the

JACOBÆAN PULPIT,

with sounding-board, the rood loft stairs, a curious chamber on the north side of the tower often used as a parish lock-up, a handsome Georgian brass candelabrum, and the altar railings dating from the time of Archbishop Laud. At Yate Court the party rambled about the grounds, and viewed the ruins of what must have been originally an extensive building. The remains of this ancient fortified dwelling stand within an oval moat, about 100yds. long by 80yds. wide. The deep moat, though narrowed by the *débris* from the falling walls, is almost perfect. It is very difficult, without long and careful study of the ruins, and comparison of them with strongholds of the same date, to picture the castle as it stood in all its magnificence in the time of the disinherited Lords of Berkeley, who built it and dwelt here whilst Henry VIII. and Edward VI. held Berkeley Castle, their ancestral home. The drawbridge over the moat has long since been superseded by a permanent roadway, but the graceful outer arch, with its characteristic hood moulding, still contains the groove through which the portcullis fell to bar the further progress of a foe who had already crossed the moat. The beautiful window above this arch, with its two principal lights, and with quatrefoil and trefoil mouldings in its head, gave light to a large guardroom above the vaulted gateway, the massive fireplace of which still remains. A barn on the east side of the gatehouse acts as a buttress to preserve it. The most interesting periods in the history of Yate Court are the thirteenth and the first half of the fourteenth century, when the De Wyllingtons occupied it; the first half of the sixteenth century, when the Berkeleys were here; and the autumn of 1644, when it was occupied by a parliamentary force from Gloucester, who soon after abandoned and destroyed it. Alexander Staples held Yate Court at the time of his death, in 1590, as the inscription on his brass in Yate Church shows us. A rather long drive through beautiful scenery, with fine views of Tortworth, Nibley Knoll, and Hawkesbury Upton, was taken to Horton, permission to visit the Court having been granted by Admiral Sir F. Richards C.B. The greater part of the mansion is unfurnished, since the owner only stays there a day or two in a year. The house belongs to two very different eras: to the Norman of the twelfth century, and to the Renaissance or Tudor Gothic Architecture of the sixteenth century. The north wing is one of the very few Norman unfortified domestic buildings remaining in England. The main part of the house was evidently built in the early part of Henry VIII.'s reign on the site of an earlier house. It consists of a central gable running east and west, and two others running north and south. On the left the dining-room, with a Tudor fireplace, having

THE ARMS OF THE BUILDER.

On the right is the drawing-room, with a Queen Anne look about it, and a pretty little boudoir beyond. Behind the drawing-room is the ancient kitchen. There are no stirring annals of Horton Court. The Manor in the time of Harold belonged to his third son, Ulf, whom William the Conqueror sent to a prison in Normandy when he had confiscated his lands. Little Sodbury Camp and Manor House were also visited.

A SUMMER SUNDAY IN TROYES.

By THOS. FRANCIS BUMPUS.

THE province of Champagne generally, and the city of Troyes in particular, will forever be associated in my mind with one of the most refreshing holidays spent among those "glories" of France, her cathedrals and churches.

It is half-past five in the afternoon, and a long day has been devoted to the ecclesiastical treasures of Paris. With Flandrin's noble frescoed procession of saints at St. Vincent de Paul in the mind's eye, and the last strains of the Gregorian Chant at Compline in Notre Dame ringing in the ears, I am speeding along by the Seine and Yonne in the crowded Dijon train towards Sens. Darkness has set in ere I alight at the station of this staid little archiepiscopal city, so that it is early morning when my first impressions are formed of the interior of its cathedral,

whose solitary Flamboyant south-west tower* forms, with the general bulk of the edifice, a landmark in the flat Champagne country for miles round. But it is not upon Sens cathedral, so dear to the hearts of Englishmen from its resemblance in many details to parts of our own glorious Canterbury, that I propose now to linger; nor upon Joigny, amid whose quaint, hilly, tortuous streets on the northern bank of the Yonne three very interesting old churches are to be found—especially delightful, being that of St. John the Baptist, an extraordinary production of the Early Renaissance. Nor upon St. Florentin must I dwell—St. Florentin, with its naveless, Beauvais-like church, rich in Palladian screens to the chapels encircling its choir, and preserving one of the few *jubés*—a very late one it is true—that

* Sens is not the only instance of a French cathedral façade equipped with a solitary steeple, Meaux, Troyes, Auxerre, and Soissons offering similar examples. At Sens the northern tower was only removed during the forties of the present century. May its rebuilding be not far distant!

A subsequent visit was paid to Sens on a Sunday afternoon. It was just such an afternoon as that described by George Eliot in the eighteenth chapter of *Adam Bede*! There had been heavy showers at Auxerre in the morning, but when I arrived at Sens "the clouds had rolled off," and lay in towering silvery masses on the horizon. The vast Transitional cathedral was glorified by the afternoon sunlight, and the office hymn for the festival of the Transfiguration "Quicumque Christum queritis" was rolling grandly through the building.

revolutionary fury and Early Empire had taste have spared to France. Fain would I, too, dwell upon the not far-distant Pontigny—that lowly-situated, simple, solemn, First Pointed Cistercian Abbey Church, another French building that has such large claims upon the sympathies of English churchmen, from the fact of three most illustrious Archbishops of Canterbury, A. Becket, Stephen Langton, and St. Edmund, having found an asylum within its precincts when driven by troubles from their native country.

Nor can I do more than briefly refer to Auxerre, with its great tawny First Pointed and Flamboyant St. Etienne; its truncated St. Germain with its isolated Chartres-like spire; and its voluptuously Renaissance St. Pierre, all proudly dominating the houses stretching between their apsidal east ends and the Yonne.

No! upon none of these must I now linger, but hurry with my readers along that uninteresting bit of railway line uniting St. Florentin with the old capital of Champagne, where is enshrined that gem of the thirteenth century, the church of St. Urbain, an illustration of which, from the facile pen of Mr. Albert Hanson, embellishes the present number of our paper.

Delightful it is to wake up at six o'clock on Sunday morning in one of the large, airy bedrooms of the Hotel des Courriers at Troyes, and to see glorious Old Sol tinge the peaks of some antique gables opposite with his golden fingers. But all this is as nothing compared with the subsequent pleasure of inhaling the sweet early morning air as it is wafted through streets of old timbered houses from the vast tract of flat country environing the city, or while threading the mazes of that most agreeable of lounges—a French flower market. Thus, interspersed with an occasional dive into a church or two, where the white chasubled priest moves softly to and fro before the altar in the stillness of the early morning mass, the time before breakfast glides away most delightfully.

The Troyes churches cluster almost as thickly as those in Cologne. If not of the highest order architecturally—being chiefly in a very plain, I had almost said bald, Flamboyant style peculiar to this district of Champagne—they have managed to retain a considerable amount of old furniture, and the picturesqueness thus imparted to them is much enhanced by the narrow, high open-backed benches with which they are seated in lieu of the chairs customarily met with in French churches.

In succession, I visit St. Jean, remarkable, not only for its lofty clerestoried choir of pointed windows, filled with Renaissance tracery—a choir which rises clear above the tracements with which the church is almost completely hemmed in—but for its altar piece, which is embellished with the painting by Mignard, a native artist, of Our Saviour's Baptism. Usually, this picture is kept veiled, but to-day being "Dies Dominica" it is disclosed to public gaze.

St. Nizier, St. Remi, St. Pantaleon, and La Madeleine, before whose matchless early sixteenth century rood-loft—"a curtain of lace, cut in marble"—I spend some time rapt in admiration, all, in some point or another, challenge the attention. At length, I stand before St. Urbain's which, with its gracefully contoured Decorated apse, profiled against a sky of purest cobalt, and with the early morning sun streaming through the storied panes of the old stained glass of its windows, throwing choicest hues upon the surrounding stonework, fairly earns on this occasion the eulogium, passed upon it by one whose name is, I trust, not wholly forgotten in architectural literature.* "For a building of its size, it is the most enchanting architectural spectacle which the genius of man has bequeathed to the admiration of successive ages."

Begun in 1262 by Pope Urban IV., son of a shoemaker of Troyes, on the site of his father's workshop, this elegant church for more than six hundred years remained but a fragment,

* Thos. Inkersley (*Romanesque and Pointed Architecture in France*) (1850).



INTERIOR OF ST. ETIENNE, AT AUXERRE.

consisting only of a choir and transepts. The pier arches and western portals of the nave had been raised when the works were abandoned, only to be resumed within the last ten years.

The spirited drawing which accompanies these notes precludes any detailed description of this thirteenth century gem. "Le plan de l'église St. Urbain est champenois," says Mons. Viollet le Duc; but is there not in the minds of those conversant with the great "hall" churches of such cities as Münster, Soest, and Erfurt a reminiscence of German when viewing the tall, aisle-less chévet of this church, due presumably to the vicinage of this part of Champagne to Teutonic soil? Several of the Châlons and Toul churches exhibit similar Germanisms.

If as regards its proportions, Troyes Cathedral is hardly entitled to a place among such churches of the first class as Amiens, Chartres, Rouen and Rheims—its Early Pointed choir desiderating that expansion and dignity which constitutes so noble a feature of those examples—it must, on account of its delicate detail, and the wealth of coeval painted glass, which fills not only the First Pointed windows of the choir, but the Geo-

metrical and Flowing Decorated ones of the nave aisles and clerestory—assuredly be entitled to a very high rank among those of the second.

But it is time to return to the Hotel des Courriers and take a light meal, preparatory to "assisting" at the Morning Offices in the glorious five-aisled cathedral* of St. Peter and St. Paul.

The matutinal Office of Tierce is being chanted *in choro*, as I enter and seat myself in one of an empty collection of chairs, very much at my service. The Office concludes. People have meanwhile begun to take their places for "La grande Messe de dix heures." Ladies are, as usual in French churches, in the ascendant. "Monsieur est catholique, mais il ne pratique pas." What a contrast to Germany, with its churches, such as the Dom at Münster, to take a solitary example, crammed to suffocation at the mid-day "*Sing. Amt.*" A bell tinkles. The six great candles upon the High Altar have been lighted, and the officiant upon whom the duty devolves

* One of the few French churches planned with aisles to both nave and choir, others being Bourges and Paris.

traverses the nave, attended by a little flaxen-haired acolyte, in a crimson cassock and cotta, to perform the aspersions, during which the never-wearying melody to the "Asperges me Domine" is chanted to soft organ accompaniment in the choir. Again the bell tinkles. The great organ at the west end flourishes in the key of D minor. A crucifix, flanked by a pair of candles, gleams in the dusky, southern choir aisle, and in honour of St. Loup—he who with St. Germain l'Auxerrois rid Britain of Pelagianism—a procession circumambulates the choir, chanting to a memory-haunting Gallican melody, one of the sublimest hymns in the range of mediæval psalmody:—

Iste Confessor Domini, colentes
Quem pie laudant populi per orbem,
Hac die letus meritis beatus
Scandere sedes,

a hymn whose irregularity of metre has precluded its rendering into truly elegant English to suit the plain song melody. The compilers of the "Hymnal Noted" in the early days of the ecclesiological revival attempted it, but their translation has the brilliance yet stiffness of a gem, while the verses of the Latin poet resemble the soft dewy freshness of a flower.

Between each verse the player of the great organ at the west end of the cathedral takes up the strain and improvises upon it in a manner thoroughly French. Sometimes the tones of the instrument shake the pavement beneath our feet; sometimes they seem full of passionate pleading, and anon, they trip measurefully along, or flash out in sudden brilliance, like a fountain springing upward and tossing the sunlight from its myriad drops.

The Introit having been sung, the organ breaks out again in delicious interludes between the severe simplicity of the Plain Song Kyries—suggesting the contrast between Corinthian and Doric, or between Flamboyant and Lancet.

The music this morning is what is known to us as the "Missa de Angelis," wherein occurs one of the most beautiful pieces of Plain Song writing I know, viz., the Amen at the conclusion of the Credo. The ritual throughout befits the dignity of such a cathedral as Troyes. All adjourn to the nave for the sermon, whose rapidity of delivery precludes my comprehending very much of it, so I allow my thoughts to vagabondise about the noble clusters of shafts with their narrow, delicately foliated capitals belonging to the nave arcades and recalling those on the south side of the nave at Worcester; or about the Flamboyantly traceried aisle windows, wherein the *fleur-de-lys* figures very conspicuously; or I dwell upon the rose which terminates either transept. But the discourse must have had a spiritualising effect, for a rich vein of copper lined the alms-bags when one of those *instrumenta* was duly handed to me by a suave, surpliced canon, and a second by a little girl preceded by a gigantic *Suisse*, a damsel whose dress was really so very *bouffée* that I quite trembled for the propriety of her appearance. Coppers, too, were rained down from hands *bien gantées* into the tin mugs of beggars who, Continental fashion, infest the principal approaches to this cathedral.

The afternoon is spent in again attending the Cathedral service. This time I take a chair in the *pourtour* of the choir, and feast upon the glorious painted effigies of saints in the clerestory windows, large ones of two unfoliated lights with a cusped circle in the head of each. "Iste Confessor" is again sung; this time as office hymn to "Magnificat." Then comes a delightful stroll through the fields, forming the vast environing plain, bounded in the distance by a range of hills, which, under the conditions of sunlight at this time of day, wore a lovely violet hue. Inspection of sundry old village churches, which, with their countrified fittings, are a perfect revelation to the ecclesiologist, diverted the walk very agreeably, and as darkness falls, Troyes is regained while the curfew rings from a large, plain Flamboyant church, whose interior seen at this hour wears an appearance truly awful and impressive.

Next day I am at Châlons, en route for Rheims, Soissons, Laon and St. Quentin, to all of which I may advert in a future issue.



SENS: THE CATHEDRAL, LOOKING EAST.



SOUTH SIDE OF THE ABBEY CHURCH AT PONTIGNY.

IN THE HARTZ DISTRICT.

AN EASTER SKETCHING
RAMBLE.

BY G. A. T. MIDDLETON, A.R.I.B.A.

I.—THROUGH HOLLAND TO HANOVER

USUALLY, when taking a rail or steamboat journey, one's object is to do nothing but to let the time slip by unheeded. When out upon a sketching tour, especially when travelling through country which is new to one's self, it is very different. Every sense is alive, and everything seen which is different from the ordinary is noted. Thus it was with me, in a recent journey across Germany, for though the route was one well known to English travellers, it was fresh to me.

I had elected to travel by way of the Great Eastern—the Harwich route—liking its directness, its comfort, and the opportunity it gives for a good sleep on board; so that I was landed at the Hook of Holland exceedingly early one morning, and was travelling for many hours through the land of the Dutchman, and a prim, well kept, well cultivated land it is. It was early spring, and the hyacinths were in blossom; which means that the fields in many places had the appearance of carpets of rich colour. But it was not the fields nor the straight canals and equally straight avenues of trees, nor the countless windmills, which I had come to see, but rather the buildings, their Architecture, and their construction. Holland, in this respect, was already known to me, as it is known to many English architects, with its wealth of suggestion adaptable to modern English needs, and its extreme poverty of detail. Churches, of course, were passed in plenty, with towers generally more curious than beautiful, and late Renaissance in style; but a long lancet belfry window in one of them seemed worthy of at least passing record, with its simple, yet effective tracery, deep set in the brick walls. This was also the case with two simple methods of placing an octagon on a square, neither of which, however, was wholly satisfactory, while a crenellated water-gate clearly deserved much more careful attention than could be given to it from a train which at the

time when it was passed, was travelling at some thirty miles an hour.

At Osnabrück all the passengers had to alight, and some pleasant travelling companions, who were going north through Bremen, were parted with. One of these, an engineer, had strongly advocated the use of the camera by land surveyors, saying that for mapping purposes he believed it was quite as accurate as the plane table, with the advantage of giving the topography as well as the plan. He spoke of placing it upon a known station, determining its direction, and taking view, including two known stations also in the view, when, the focal length of the lens used being also known, it would be quite easy to lay down the relative positions of all other points seen. Another way in which he had employed the camera when surveying had been as a camera-meida, putting a piece of thin tracing paper upon the focussing screen of ground glass, and sketching on it the outlines of mountains peaks.

At Osnabrück there was time to wander into the little town, but except for the church this seemed to be entirely devoid of interest. Even the church possesses no very remarkable features, but it groups well when first seen, and the vaulting of the interior is massive and dignified, of a simple early Gothic, almost Romanesque, type unknown in England.

Even before Osnabrück had been reached, the typical half-timber work of Germany, of which so much was to be seen during the next ten days had come in evidence. The farm-houses were single-storied, large wide-spanned houses, with steep tiled roofs, and at first the timber was rectangular only, and the chimneys short and with a covering cap over to prevent down blow, just the apex of the gable at either end would, perhaps, be filled with diagonally crossed timbering, or might be tilling, or even hipped-backed; while the plaster filling between the timbers would often be coloured blue, affording a curious contrast with the bright red of the Italian tiling.

Some of these houses were in course of erection, and from them it appeared that only one end of each was used for dwelling purposes, the rest, under the same roof, being apparently devoted to the stables and the barn; while the wide span roof was supported by a row of posts, separating the width into a semblance of the nave and aisles of a church, these posts carrying a plate or purlin.

Shortly after passing from Westphalia into Hanover, through the "Gate of Westphalia"—a pass between low hills thought much of in this great plain country—the gables of the timbered houses became customarily filled with a tile-hung hood, a most eccentric looking feature serving no apparent purpose, though somewhat picturesque, it being remembered that the tiles in use everywhere are Italian tiles, whether for roofing or for hanging.

It was too late when Hanover was reached at length for anything to be seen of it except that it was a well built modern town. So the comforts of the Hotel Bristol were chosen in preference to a night tour of inspection round the town.

(To be continued.)

THE Urban District Council of Romford is erecting public swimming baths from designs by Messrs. Harrington and Ley, of 108, Fenchurch Street.

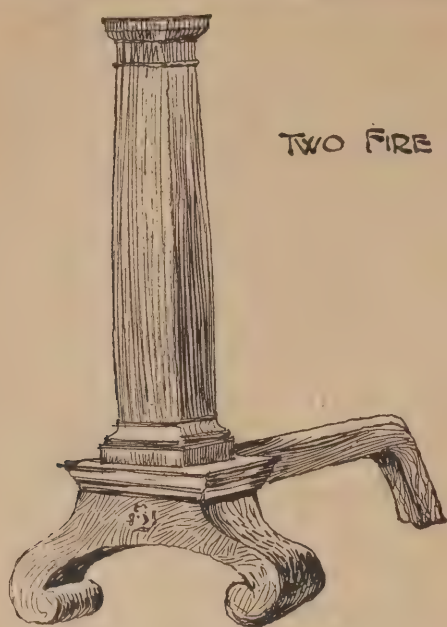
THE corner-stone of the new English church at Lucerne, which is being erected by the Colonial and Continental Church Society, was laid recently.

NEW elementary schools are about to be erected at Wood Green, according to the designs of Mr. G. E. T. Laurence, 181, Queen Victoria Street.

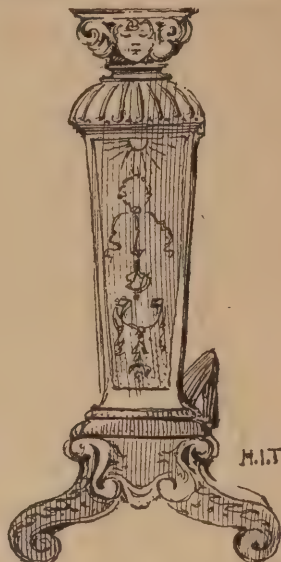
THE working of the municipal electric trams at Dover has been so successful during the last six months that the Corporation have been enabled to reduce the town rates by 2d. in the pound.

PLANS for the reconstruction of the interior of South Queensferry Parish Church have been prepared by Mr. McGregor Chalmers, architect, Glasgow, and have been approved of and signed by the Presbytery, heritors, and Kirk Session.

A NEW and improved design of a first-class corridor sleeping car has just been placed on the West Coast railway route between Edinburgh and London. It is one of several that have been or are being built at Wolverton for the London and North-Western Railway Company, and looks a perfect piece of workmanship in every particular; nothing apparently having been left undone to secure the utmost comfort and convenience. The furnishing, upholstering, and decoration of the car are on an elaborate scale, white wood panelling, inlaid with walnut, being a conspicuous feature.



TWO FIRE DOGS



M.T.

SKETCHES AT THE ART METAL WORK EXHIBITION AT THE ROYAL AQUARIUM.

ART METAL WORK.

EXHIBITION AT THE ROYAL
AQUARIUM.

[BY A SPECIAL CORRESPONDENT.]

THE exhibition of metal work now being held at the Royal Aquarium serves well to show what advances have been made in English ironwork during the last few years. After the wonderful work left to us by last century's workers, by Jean Tijou and Huntingdon Shaw at Hampton Court, by the craftsmen who executed the gates and railings of many a Chelsea house, and by the examples of cast work turned out from the old Sussex foundries, it seems strange that the art of the smith should have fallen to so low a degree during the first half of the present century that even now we seem to be at about the same position in which we stood a hundred years ago. The present advance is, perhaps, largely to be attributed to such men as Norman Shaw, George Devey, Ernest George, and a host of younger men. The exhibition will show that manufacturers have at last awakened to the fact that a demand exists for better class workmanship and design. It is especially gratifying to see cast-iron work losing the wrought-iron appearance which so many designers have hitherto given it, and in the wrought metal work there is happily a great tendency to realise the value of a sympathetic treatment of the colour of the metal.

It is unfortunately impossible at this early stage of the exhibition to go very fully into the Loan Collection gathered together principally in St. Stephen's Hall, owing to the lack of a catalogue, which we believe, however, will be published in the course of a few days. The greater part of this collection consists of examples of the armourer's art, which will doubtless appeal to many. Rarely, indeed, have we an opportunity of examining so good a collection which, though small, contains some of the most valuable suits of armour extant. Her Majesty the Queen has graciously lent three magnificent suits, which belonged to Henry, Prince of Wales, Edward VI., and the Earl of Essex, together with five plaques recently unearthed at Kew. The Duke of Norfolk lends the chalice of St. Thomas à Becket; the Duke of Westminster five magnificent suits of armour; and amongst other exhibits are a Gothic fluted suit lent by Lord Zouche. A very fine collection of gun and pistol locks lent by Major Farquharson, a Henry VII. helmet from the Very Rev. the Dean of Westminster, a well selected

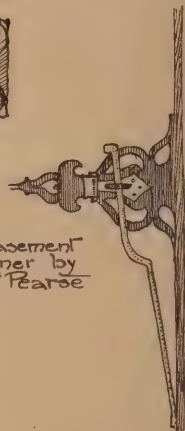
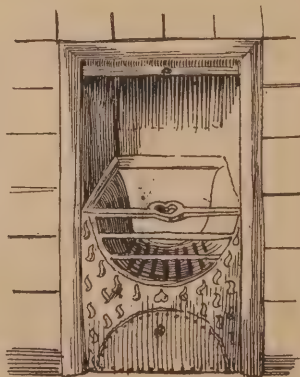
collection of suits of armour from the Middle Temple, including some very fine shields, and a magnificent breastplate; Highland swords and dirks by Lord Archibald Campbell, a sallet of the fifteenth century lent by the Mayor of Coventry; pistols and daggers by Sir Noel Paton, a fine chamfron, a full suit, and some exquisite stirrups and bit, the property of Major Williams, a remarkable collection of early swords, including a Viking sword of the twelfth century, inlaid with gold and copper, found in the bed of the Thames, a

carved figure of a foot soldier of Francis I. period in the costume and armour of the "Bandes d'Picardie," some early swords lent by James F. Sullivan, a fine case of weapons, and an early sixteenth century suit, from O. J. Whavell. Mr. Percy Macquoid has several exceedingly fine exhibits of steelwork. In the gallery adjoining St. Stephen's Hall is a collection of cast-iron firebacks, mostly of the sixteenth and seventeenth century; and there are also some fine examples of firedogs and iron rests of varying date, but all well worthy of close inspection. The exhibits of old wrought-iron work are not so numerous as we should have wished, but these few are of no inconsiderable interest. Mr. Geo. C. Haité exhibits two iron crosses, in one of which the shaft of the cross is attached to its wooden pole by means of rings, instead of the more modern method of bolting.

In the Industrial section of the exhibition there are forty-six stands, included among which are exhibits of wrought-iron, cast-iron, Repoussé work, electric light fittings, and casements. Amongst the wrought-iron work, Messrs. Starkie Gardner's three stands will claim attention. Their pair of entrance gates, of which if we recollect rightly, we have admired the drawing in last year's Royal Academy Exhibition, are particularly interesting both as regards design and workmanship, the latter will compare very favourably with Jean Tijou's best work at Hampton Court. This firm have also exhibited a collection of balcony and other panels in wrought-iron, wrought-iron screens and many miscellaneous examples of art-metal work, together with another very handsome pair of entrance gates, besides that already noticed.

In stand No. 18, Messrs. Ashford and Butler exhibit some wrought-iron panels, small in detail, though of very elaborate and careful workmanship, a swing mirror, grilles, lamp brackets, and an iron clock to hang on wall.

Messrs. Lindsay, Neale and Co., exhibit a

Glass Fanlight with:
Copper lamp, exhibited:
by Messrs R.E. Pearse:A Casement
Fastener by
Messrs PearseA fireplace exhibited by
The Coalbrookdale Coy.

H.T.

A Balcony by the Falkirk
Iron Company.

C.H.S.

SKETCHES AT THE ART METAL WORK EXHIBITION AT THE ROYAL AQUARIUM.



ART METAL WORK EXHIBITION: CAST IRON FIREPLACE,
EXHIBITED BY THE FALKIRK IRON COMPANY.

pair of wrought-iron gates which would have been better perhaps if seen unpainted. This firm has long been known for the excellence of their constructional iron and steelwork, which, unfortunately, hardly comes under the heading of art metal work in this country, although our neighbours across the Channel for years past have considered constructional ironwork well worthy of decoration, both in form and colour.

Messrs. Thomas Potter and Sons, of Oxford Street, exhibit a balcony and gates of the beginning of the eighteenth century, the property of H.R.H. Princess Louise, a wrought-iron cabinet, some iron and bronze fire dogs, an interesting collection of locks and keys, together with some iron panels, grilles, &c.

It is, perhaps, in the exhibits of cast-iron work, principally fire-places and mantels, that we find the greatest studies have been made, and all architects will do well to visit the stand of the Falkirk Iron Company in the North-west Gallery. This firm have done well in securing the services of several well-known designers, and the results are highly to be commended. In the two designs of cast-iron fireplaces which we illustrate, a distinct departure from the ordinary will be observed, the design is also rendered more pleasing from the fact that the imitation of wood construction, which hitherto appears to have been considered so indispensable, is here entirely eschewed. The suitability of cast-iron when properly designed for the purposes of fire-places, and as giving effects which probably in no other material could be produced at anything approaching the cost, is here well demonstrated. The Falkirk Company have also some good exhibits of cast-iron railings cleverly designed, and in no sense imitations of wrought-iron work, a mistake unfortunately so much made, more especially in railings.

The Carron Company have an exhibit principally of interior grates, many of them of genuine eighteenth century design, the original models of which, executed at the Carron Works between 1780 and 1800, have recently been again brought to light, a very curious example of the trend of fashion to the work of the Georgian period, so noticeable in recent years. This Company was established in 1759, and ranks among the oldest and largest ironfounders of Great Britain.

In the South Gallery the Coalbrookdale Iron

Company exhibits a good selection of cast-iron and bronze work, principally in grates. One very quaint design we reproduce here. This firm is perhaps very largely responsible for the Renaissance in cast-iron work of recent years, and they have been fortunate in securing some very fine designs from Norman Shaw downwards. We were particularly pleased with a little grate enclosed within a frame of poppies (the flowers being in bronze), a very good idea, which we do not remember having seen elsewhere.

Amongst the exhibits of repoussé work those of Mr. Edgar Simpson, of Nottingham, will claim particular attention. His productions are good, in that they emphasize what appears to us a most vital point in dealing with metal work successfully, namely, the importance of considering the colour tones. We recently had the pleasure of seeing a collection of his bell pushes, in the treatment of which he is very successful. Mr. Simpson also exhibits an Elizabethan frieze in repoussé copper.

Amongst the casements exhibited, those of Messrs. R. E. Pearse and Co. will claim attention on account of their excellent finish. An old-established firm, they have for many years been turning out very high-class work, and have devoted their attention more particularly, with a very good result. We illustrate a fanlight arranged for an electric lamp, which

forms a good example of the lead-light work executed by the firm. We also noted an improvement in the hanging of casements, by means of which it is rendered possible to clean both sides of the glass from within, the casement being attached to the frame by a pivot about 4in. from the end, instead of at the end of the frame.

The Central School of Arts and Crafts have an interesting exhibit of cast lead-work, including a very quaint rain-water head ornamented with thistles.

Messrs. Henry Hope, of Birmingham, have a good exhibit of their casements, as well as some very quaintly designed lead light work.

Messrs. Burt and Potts, of Westminster, exhibit gun-metal, and wrought-iron windows and casements.

The N. A. P. Window Company have a large and interesting exhibit on the ground floor, principally of their well-known windows. Amongst other novelties they show a very ingeniously concealed window-stay, suitable also for French windows which provides for holding the casement open at various angles; they also exhibit their wet and draught excluder, with condensation channel for outward opening wood casements and doors, which will supply a long-felt want; they have a very good idea in their airtight centres for casements, which apparently form a joint completely protected from wind and wet. The N.A.P. Company have recently secured the co-operation in their

art metal department of Mr. Geo. C. Haité and are exhibiting many of his designs for wrought-iron.

At stand No. 9, the Tayler Smith Electric Company exhibit a magnificent piece of smiths' work, of vigorous and pleasing design, executed for the Scottish Conservative Club, Glasgow, together with many other specimens of wrought work, which renders this stand one of the most interesting.

Mr. George Wragge, of Manchester, shows one-half of a very beautiful and characteristic pair of gates, designed by Edgar Wood, together with some repoussé dishes and several commemorative tablets.

Mr. J. E. C. Carr, of Manchester, has some very quaint hanging lamps in brass, as well as some repoussé panels.

Messrs. Perry exhibit many of their reproductions of famous models of chandeliers, &c., from French Palaces of the Louis XIV., XV., and XVI. periods, the Italian Renaissance, &c., now adapted for electric light fittings.

The A.A. Window Company exhibit their patent sashes, which render the cleaning of windows far safer and simpler than the ordinary methods of hanging.

Messrs. Strode and Co. have a good show of their electric fittings, together with several wrought-iron dog grates, and, in the centre of their stand, one of a very handsome pair of Louis XVI. gates. We also noticed a delicate piece of ironwork made up as a screw. In their newel lights, and also their electroliers, they are particularly successful.

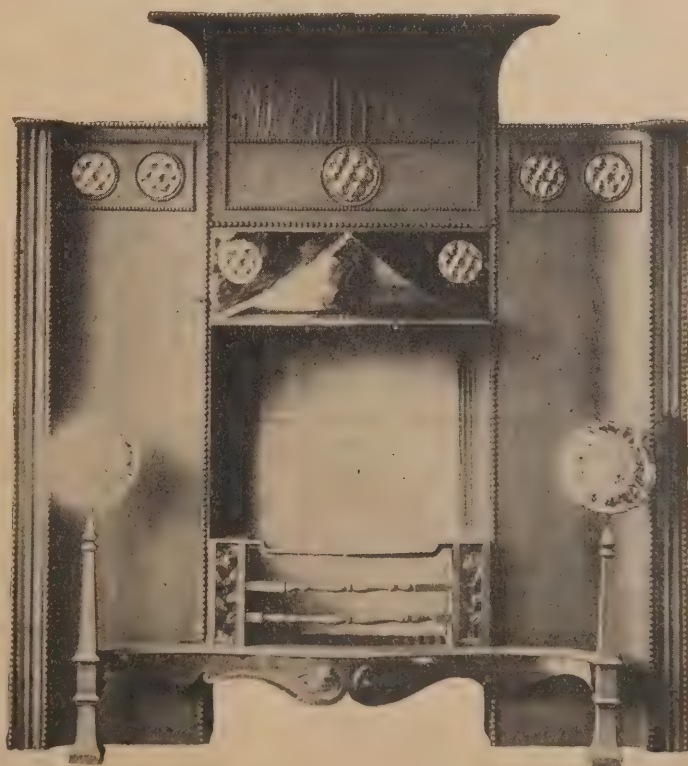
Messrs. Miller and Sons, of Piccadilly, have a very handsome stand of electric light fittings, mostly copies of old models in brass and iron. They have several electric light brackets in what is technically known as "armour finish." This finish, when, as in the present case, it is not over lacquered, has a particularly pleasing effect, especially as it allows the tool marks to be in evidence.

Mr. W. Soper, enameller and enamel painter, of Clapham, exhibits a case of champeve cloissomé and other enamels, very brilliant in colour and effective. He also shows several miniatures painted on gold, which also forms a background.

The list of awards made in connection with the designs competitions is officially supplied as follows:—

No. 1.—No award.

No. 2.—Silver medal: V. Shaw, 105, Hunger-



ART METAL WORK EXHIBITION: CAST IRON FIREPLACE, EXHIBITED
BY THE FALKIRK IRON COMPANY.

ford Road, London, N. ("St. Eloë"). Bronze medal: G. Ramsdale Tucker, Hazlemere, Green Lane, Northwood, near Rickmansworth ("Tuclarke"). Certificate: Hugh Stirling, 12, Vauxhall Street, Dudley ("Reversible").

No. 3.—No award.

No. 4.—Bronze medal: Herbert C. Maw, Severn House, Coalbrookdale, Shropshire ("Utility").

No. 5.—Silver medal: T. R. Spence, 28, Newman Street, London, W. ("Munser"). Bronze medal: Arthur Manock, Benfield House, Boscombe Park, Bournemouth ("Practical").

No. 6.—Silver medal: A. Harold Smith, 4, Fairlop Road, Leytonstone, Essex ("Wessex"). Bronze medal: Chas. R. Warren, 17, Pepper Street, Chester ("Hindoo").

No. 7.—Bronze medal: Albert Waldron, 21, Russell Road, Bowes Park, London, N. ("Heron"). Certificate: Herbert W. Doe, 30, Speenham Road, Stockwell, S.W. ("Nature in Art").

No. 8.—No award.

No. 9.—No award.

No. 10.—Certificate: Charles William Crosby, Broome Hurst, Dorking Norrey ("Appollyon").

No. 11.—Silver Medal: R. Quilter Lane, 73, Hammersmith Road, West Kensington ("Anchor"). Bronze Medal: Hugh Stirling, 12, Vauxhall Street, Dudley ("Ling"). Certificate: Mary Gondir Simpson, 199, Camberwell Grove, Denmark Hill ("Bulger").

No. 12.—No award.

No. 13.—Silver Medal: A. Harold Smith, 4, Fairlop Road, Leytonstone, Essex ("Wessex"). Bronze Medal: Herbert E. Maw, Severn House, Coalbrookdale, Shropshire ("Bull Rest").

No. 14.—Bronze Medal: A. Harold Smith, 4, Fairlop Road, Leytonstone, Essex ("Wessex").

No. 15.—No award.

No. 16.—No award.

Awards for craftsmanship have been made as follows:—Bronze Medals and Certificates: F. G. Francis, 33, St. Michael's Street, Folkstone; R. Western, 5, Bravington Place, Harrow Road, W.; A. W. Elwood, 9, Kennington Park Gardens; Annie Williams, 334, City Road, E.C.; Central School of Arts and Crafts, 316, Regent Street, W. Certificates: Thomas Taylor, 16, Sales Street, Pyr Bank, Sheffield; William Steer, 64, Longhedge Street, Battersea, S.W.

We regret that want of space does not permit us to notice more fully the many other excellent exhibits shown among other firms by Messrs. Barkenter and Krall, Brail Colbran and Co., Mark Feetham, and Messrs. Charles Smith and Sons.

MR. W. A. DUCAT has held an inquiry at Truro on behalf of the Local Government Board upon an application for sanction to borrow £1250 for works of paving.

THERE appears to be a slump in frescoes. The remarkable pictures which were alleged to have been painted 400 years ago by Bernardino Luini on the walls of the Oratory of the Church of St. Ambrogio, Milan, have been put up to auction by Messrs. Foster in Pall Mall, but sold for small prices.

It is almost certain that the proposed new station on the Metropolitan Railway between King's Cross and Farringdon Street will be made, the Company having prepared plans for it, by which it appears that the construction would not involve any very heavy engineering works. The situation of this new station will be where the Farringdon Road and Rosebery Avenue cross one another.

THE President and Committee of the John Carpenter Club—which is composed mainly of "Old Boys" of the City of London School—gave a conversation at the Guildhall last week. A collection of manuscripts, early printed books, and artistic works of interest, selected by Mr. Charles Welch, the librarian, was exhibited in the library, as well as the William Rome collection of ancient bronzes, &c., the Nelthropp collection of ancient watches, and charters and books from the town clerk's department.

AN OLD YORKSHIRE CHURCH.

DISCOVERY OF A HIDDEN AISLE.

THE ancient church of St. Helena, in the village of Austerfield, near Bawtry, has just been restored. That great improvements and alterations were necessary was apparent more to those who worshipped in the old church than those who visited Austerfield to inspect the ancient building. To commence with, the seating accommodation has been increased; it came about in rather a surprising and unlooked-for way. "The wall on the north side of the church, to all appearances, was similar to that on the opposite side—solid, and of great thickness—but when the

MASONS COME ON THE SCENE

with their hammers and picks, it was found that it was hollow, and that inside were substantial pillars supporting arches, which no doubt some centuries ago formed the side of the north aisle. It is supposed—in fact, those who are authorities on the matter say it is true—that originally the church possessed an aisle on the north side, but this falling in some time during the fourteenth century, the church was decreased in size by using the material which had given way for making a new wall, which was the one recently demolished and which hid the pillars. Those in charge at the present time have seized the opportunity thus offered of enlarging the church, and the pillars once more divide the edifice, and cause

THE LONG-FORGOTTEN NORTH AISLE

to accommodate some fifty additional persons. This has necessitated a new wall being built on the north side, and it has been made as nearly as possible like the other walls surrounding the church. The cost of this, the most important feature of the alterations, has been subscribed by the Society of Mayflower descendants in America. The interest of the members of this Society in the church is no small one, for one of the original Pilgrim Fathers, William Bradford, was born in the village of Austerfield, and was baptised in the old Norman font, and a register recording this fact is, we believe, still in existence. The other alterations have included the provision of a new floor, the taking away of the old box pews—which supplanted those of carved oak in 1835—the removal of the old shattered roof, and the provision of a new red tiled one in its stead. Various new windows have also been placed in the church, repairs have been done wherever necessary, and the interior has been completely decorated and renovated. The total cost has been something like £2000. That the edifice is an old one will be seen by the reference to William Bradford's baptism. It was built, as far as can be ascertained,

IN THE YEAR 1130,

by one John de Binsly, and since that time there appears to have been no real effort made on any occasion to renovate or improve the building. Thus time has wrought a great change in what was once a handsome Norman structure, and although many traces can still be seen of the ancient beauty and the old-time work of the church, the recent alterations have arrested somewhat the increasing marks of old age, and have made the church more comfortable and more pleasing to look upon by taking away those features which for centuries past have marked Austerfield Church as a prominent one to all and sundry who have visited the village.

THE Board of Trade have issued provisional orders to the Vestry of Bermondsey and the Vestry of St. Marylebone, empowering these bodies to supply electricity "for all public and private purposes" throughout the whole area of their respective districts.

MR. THOMAS G. MILNER, writing from the Town Hall, Hull, states that the figures quoted by the Chairman of the Finance Committee as to the proposed series of city improvements were £600,000, and not £6,000,000, as was stated in some of the reports.

KEYSTONES.

THE repairs to the Marquis of Salisbury's house in Arlington Street have been completed. A commodious new police court at Castleford has been opened by Sir John Austin Bart., M.P.

BLACKPOOL CORPORATION has applied for sanction to borrow £40,000 for the purposes of electric lighting.

THE inquiry into the application to construct tramways in Hastings has closed, the Railway Commissioners refusing their sanction.

THE children's portion of the new Home for Cripples and Afflicted Children, which has been erected at Bournemouth, has been opened.

THE Prince and Princess of Wales and the Duke and Duchess of York recently paid a visit to Shernbourne Church, and inspected the work of restoration, which is now nearing its completion.

THE Lord Mayor of Birmingham has laid the foundation stone of a new wing of the Midland Counties Hospital for Incurables at Leamington. The extension is part of a scheme involving an outlay of £17,000.

THE Board of Trade has issued a provisional order to the Urban District Council of Barnes, empowering them to supply electricity throughout the whole of the area within their jurisdiction, but excluding Hammersmith Bridge.

IN Birmingham at the corner of Church Street and Bread Street stands a forlorn-looking building, whose unwashed stucco front suggests the architecturally shabby-genteel. It is the old Red Lion public-house, a building which if stones had tongues could tell the history of Birmingham for more than a century back. It is about to be demolished.

THE City Corporation has succeeded in obtaining power to make a minor, but still important, street improvement. A part of the old churchyard formerly attached to the Church of St. Peter, West Cheap, at the corner of Wood Street and Cheapside, is to be thrown into the thoroughfare to widen Wood Street at a point where the traffic is greatly impeded.

AFTER many years of agitation, Dunoon, the popular watering-place on the Clyde, has got its new pier. The works include a concrete sea wall about 300yds. long, surmounted by an ornamental iron railing. The pier head is 440ft. in length and 60ft. in width, while the gangway forming the connection with the centre of the pier head is 170ft. long and 40ft. wide. Exclusive of the waiting-rooms—which are the finest at any Clyde coast resort, and have cost an additional £3000—the new pier incorporating the suitable part of the old structure, has cost £15,000.

THE extensive alterations which are being effected to the interior of the Liverpool Town Hall are progressing satisfactorily, but some considerable time must necessarily elapse before the building is out of the hands of the workmen. Much of the beautiful mahogany and tile work in the corridors is completed and just now the men are engaged in enhancing the appearance of the ceilings on the ground floor. Still, when this is finished, the decorators will take possession of the building and, as it is intended to expend upwards of £3000 on beautifying alone, it will be seen that the task must occupy a lengthy period.

THE well-known Italian archaeologist, Orazio Marucchi, has recently discovered an ancient papyrus in a secret repository at the Egyptian Museum of the Vatican. The papyrus consists of two fragments written on both sides, and containing a series of philosophical maxims written first in Greek and afterwards translated into Coptic. Unfortunately, the beginning and the end of the papyrus are wanting, so that it is impossible to decide its length. Professor Krall, Professor of Coptic at the University of Vienna, is of opinion that the papyrus is one of the oldest Coptic papyri yet discovered, and that it belongs, probably, to the fifth century of our era. As every Greek sentence is followed by a Coptic translation, it is supposed that the fragment just found belonged to an ancient scholastic book used in Egypt. The document will soon be published in facsimile.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
June 15th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slat; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

It is stated that the Queen will probably lay the foundation-stone of the new front of the South Kensington Museum some time in July. It is also stated that a suggestion that the name of the museum should be changed from its present official designation, which is thought to be of too local a nature, to a title more in accordance with the national character of the institution, has been favourably entertained in high quarters.

THE thanksgiving window has been finally put in its place at the western end of Hawarden Church. It is a beautiful window, with the Nativity for its subject, and it has been reproduced from the designs of Sir E. Burne Jones by Messrs. William Morris. The window had been intended as a thanksoffering for the two lives which had been spent for so many happy years together in Hawarden. It must now be regarded as a memorial window. Its design scarcely needs explanation—its sweet-faced Madonna, its shepherds, and the kings who brought gold and frankincense and myrrh explain themselves. The colouring is characteristic of Sir Edward Burne-Jones's work, and Messrs. Morris have reproduced the colours with admirable fidelity. The silvery tones of the attendant angels are especially beautiful.

In most civilised countries historic buildings are under the care of the Government or of the local authorities. In England they are left to the charity of private individuals, and the marvel is that the antiquarian zeal and reverence for the past, upon which such heavy demands are made, so often prove equal to the emergency. A venerable structure which is now recommended to the liberality of the British public is Croyland Abbey. In order to a cure the fabric, it has become necessary to underpin the north wall and rebuild some other portions, and the Rev. T. H. Le Boëuf, rector of Croyland, appeals to all readers of Charles Kingsley, all members of Cambridge University, of which Croyland Abbey was, he says, the "nursing mother," and to the various societies devoted to the study of architecture, archaeology, and kindred subjects, for help to raise the sum of £3180 which is needed. From so wide a constituency there ought not to be much difficulty in procuring the comparatively small amount which will suffice to preserve for posterity an interesting relic of the "ages of faith," and of a picturesque period of English life.

THE Champs Elysées, that lovely promenade and lounge, is being rapidly transformed into a busy thoroughfare. The Chateau des Fleurs has disappeared, and in its place is a big hotel; on the south side the beautiful old residences with gardens are being replaced by magnificent lodging-houses. The superb hotel of Queen Christine is all but sold by its present owner, the Duchesse d'Uzès, and the price, rumour

says, is eight millions, as it runs far back into the Rue de Ponthieu. The adjoining one, with its lovely garden, will also go should an ancient relative join the majority; but saddest of all is the destruction of the beautiful Wilkinson Hotel, especially built to house the celebrated doors and windows from Marly le Roi and the Chateau de Bercy, and the doors, by-the-by, owe their marvellous preservation to the fact of having been bought at the Chateau auction in 1893 by the local baker to make flour-bins! The widow of the late Mr. Charles Wilkinson, finding the Champs Elysées no longer the pleasant abode it once was, has accepted a huge sum for her palace; and the English house of Duveen have secured the contents of the Wilkinson Hotel from under the very nose of the Paris dealers, so that the admirable Marly doors, Bercy Chateau panels, and the celebrated "Cire perdue" bust of Louis XIV. and other superb objets d'art are coming to England, while the beautiful Wilkinson Hotel is razed to the ground, and yet another enormous apartment house is to be erected in its stead.

A PICTURE of considerable interest to art collectors and the public generally will shortly be offered for sale. The title of the picture is given as "The Archbishop's Palace, Lambeth," and it was the first drawing exhibited by Turner at the Royal Academy. In the catalogue of 1790 it appears as being the work of "J. W. Turner, Maiden Lane, Covent Garden." Thornbury, in his "Life," refers several times to this early drawing, stating that it "is now in the possession of Miss Dart, of Bristol." Miss Dart was a niece of Turner's old friend, John Narraway, and the drawing remained in her possession until 1868, afterwards passing out of her hands. The picture next came into the hands of a Mr. Courtault, of Baintree, in whose hands it remained until his death, which took place some six years ago, when his effects were sold, and most of his pictures came into the possession of a local furniture dealer.

THIS man, who in all probability had never heard of Turner, put the picture away among some old lumber at the back of his shop; the present owner, seeing some pictures in the window when passing, went in and turned over the whole stock, with fruitful results. The picture was recently sent to Messrs. Vokins for reframing, and they discovered a record of having framed it in 1868. The writing on the picture is quoted in part in the "Life of Turner," and the age of the artist is commented upon. The full inscription, which was been protected under glass at the back of the frame, is "The Archbishop's Palace, Lambeth (London), done by J. M. W. Turner, when a lad about sixteen or seventeen years of age; his first picture in the exhibition at Somerset House, and afterwards given by himself to his old friend Mr. John Narraway, of Broad Road, Bristol, about the year 1790 or '91." Double interest attaches to it as being not only the first Turner exhibited on the walls of the Academy, but also a pictorial record of a great historic building, as it appeared in the closing years of the last century.

THE report of the Director of the National Gallery for 1897 chiefly takes the form of a first-class catalogue of the pictures which now hang in the Tate Gallery at Millbank, for all these are enumerated and described in an appendix "respecting bequests and donations." Besides these pictures the National Gallery has acquired, "Christ Disputing with the Doctors," by Ludovico Mazzolino, "Portrait of Edmund Butts," by John Bettes, "Portrait of Mrs. Mark Currie," by George Romney, and "Portrait of the Artist," by Madame Vigée Le Brun. The Romney cost £3500—Romney himself got sixty guineas for it; the unearned increment can only count to him for glory. The most noticeable thing in the report next to its description of the pictures is the constant complaint concerning want of room. The National Gallery appears to have been honestly relieved to have found in Sir Henry Tate's Gallery a place where it could deposit the superabundant pictures of the British

school. The transfer from the gallery in Trafalgar Square of ninety-one pictures by British painters born after 1790 to the gallery at Millbank has permitted all the remaining examples of the British school to be placed in the western wing of the building in Trafalgar Square without crowding; and in many instances the pictures are seen to better advantage than before. Other advantages gained by the new adjustment have been the possibility of putting the Spanish pictures at last in a good light, and of securing a separate room for works of the German school, hitherto grouped with early Flemish pictures. But the cry for more space is not yet appeased.

THE ARUNDEL SOCIETY applied for permission to deposit at the National Gallery 181 additional drawings from works by Old masters in Italy and other countries, but the National Gallery, while acceding to the request, have not been able to find space in which to exhibit the drawings. Even at Millbank they are waiting eagerly for the ten new rooms which Sir Henry Tate has promised to build, and until the rooms are finished the G. F. Watts pictures will have to be distributed about the present rooms instead of having a room to themselves. The gallery in Trafalgar Square was visited by 423,421 persons on the free days during the year, showing a daily average attendance on such days (206 in number) of 2055. In addition to this number, 32,876 persons visited the gallery on the twenty-six Sunday afternoons on which it was opened during 1897, showing a daily average attendance of 1265. On students' days (Thursdays and Fridays) 39,358 persons were admitted between the 1st of January and the 31st of December, 1897, the admission fees (at 6d. each) amounting to £983 19s., as compared with £1064 10s. received in 1896. The Gallery of British Art at Millbank was visited by 104,275 persons on the public days, from the 16th of August to the 31st of December, showing a daily average attendance of 1337. On the six Sunday afternoons on which it was opened it was visited by 19,955 persons, showing a daily average attendance of 3326. On students' days 15,795 persons were admitted between the 16th of August and the 31st of December.

THE Dean of Bristol, in a letter to a local contemporary concerning the restoration of Bristol Cathedral, gives some account of the work already done. He says:—"Up to the present date the following works have been completed by Messrs. Cowlin, under the direction of the late Mr. Pearson: Central tower, Lady Chapel, cloisters, choir roof, parapets of south choir aisle and eastern end of choir, the northern, eastern, and southern bays of the eastern Lady Chapel, the last bay of which is now being completed. Every passer-by cannot fail not only to notice how much the restoration so far covers, but to recognise also the improved appearance of the cathedral itself. There remain the following works and the approximate estimate for their completion:—To finish Berkeley Chapel, £620; N. C. aisle, £900; S. C. aisle, £450; Newton Chapel (approximate), £300; roof of Berkeley Chapel, £200; south transept, £150: total £2620.

"VERY few people have any idea of the condition of this portion of the fabric. Very few have occasion, even out of curiosity, to visit the south-western side of the cathedral. It is really no exaggeration to say that it is in a ruinous condition and imperatively requires thorough restoration. It is not a matter of sentiment, but of urgent necessity for the preservation of the fabric itself. It is not creditable that the cathedral of the 'Metropolis of the West,' in the centre of a wealthy community, should continue in this dilapidated state. If I could raise about £3500 the cathedral would be thoroughly restored, and my heart's desire is to see this *un fait accompli* in my closing lifetime here."

CRITICISM on the part of the public has been directed to the draft of the proposed bye-laws for the regulation of lamps, signs, and other structures overhanging the public way within

the jurisdiction of the London County Council. The draft is at the present moment engaging the attention not only of the Building Act Committee, but of the vestries and district boards of the metropolis to whom the suggested regulations have been referred. The aim of the regulations is to suppress as far as possible the elaborate projections which have in recent years been erected over the footways by the proprietors of licensed houses; but, at the same time, certain trading firms who have largely relied upon rows of advertising lamps will probably find that restrictions will be imposed upon their use, but whether to the extent as provided in the draft remains to be seen.

DISCUSSION is chiefly raised upon the clauses in the bye-laws which exact that no lamp, or structure supporting the same, shall be nearer to the carriageway than 3ft. from the outer edge of the kerb, and project more than 4ft. from the main wall of the premises to which it belongs. It is argued that the suppression at the end of twelve months of every lamp which infringes one or other of the bye-laws would entail the confiscation of a vast amount of property which is not a nuisance and an eyesore but, in the majority of cases, an ornament, as well as of benefit to the public in affording additional street illumination to that provided by the public lamps, electric or gas.

FOLLOWING the precedent now some years established, the executive committee of the Silchester Excavation Fund are exhibiting, at the rooms of the Society of Antiquaries, Burlington House, the chief discoveries made last year at the great Romano-British city about ten miles from Reading. The work was actually begun in 1864, at the expense of the Duke of Wellington, and was intermittently carried on for about fourteen years; but it was not until 1890 that the present fund was formed to conduct the investigations in a thorough and systematic manner. Silchester, or Calleva, as it was known in Romano-British days, is unique as illustrative of the civil town life of its days, and among the many other features of interest which have been brought to light there are the evidences of an extensive dyeing industry, a Christian church, probably of the fourth century, and therefore one of the oldest relics of the faith in Europe, temples, baths, and a scheme of drainage. The excavations last summer and autumn were conducted by Mr. Herbert Jones and Mr. Mill Stevenson, and the area explored embraces the 17th and 18th of the insula into which the city was divided, the two covering in all about five acres. Some wooden tubs sunk in the earth as wells were in remarkable preservation, and one of these, over 6ft. in height, had only one defective stave. A very large jar of grey ware, 2ft. high and 22in. in diameter, with painted black bands and incised decoration, was found sunk in a kitchen floor, and was removed almost intact. It is inferred that it was used for the storing of pickled meat. The Samian ware is unusually beautiful, and the bowls show the three types of decoration generally employed in excellent contrast, as the pieces include ornamentation in the Greek scroll, foliage, and spirited animal designs. A small vase is notable both for its graceful shape and medallions with masks. There are also two bronze brooches, with designs carried out in coloured enamels, some lengths of fine chain with hooks and swivels, curiously suggestive of present-day watchguards, and a device in bronze of a well-modelled eagle's head, which probably surmounted a wand of office. The display will be continued until June 15.

THE Parish Church of All Saints, South Leventon, near Retford, has just been reopened after complete restoration. The church is a beautiful building, chiefly in the early English and decorated style, but possesses a fine late Norman doorway (south), with Norman windows in the tower. The arcades are especially grand, and the carved early English capitals of great beauty. An ancient piscina in the east wall of the south

aisle marks the site of a chantry chapel. The chancel was restored in 1867 by the Ecclesiastical Commissioners, but for a long time it seemed an almost impossible task to raise sufficient funds to restore the other parts of the building. The architect for the restoration was Mr. Cotterill Schofield, of 50, Queen Anne's-gate, S.W. The chief work has been the removing of the roof of the nave, aisles, and vestry, and replacing them with roofs at a higher pitch, taking down and rebuilding in their original positions the walls of the nave, aisles, vestry and tower. The south porch has also been removed, and a new one built. The floor of the nave has been laid with wooden blocks on a concrete bed, and a new heating apparatus supplied by the Sheffield Warming Company.

ANOTHER new building collapsed! Happily the consequences of the "accident" in Devonshire Street, Portland Place, were not so terrible as in the recent case at Westminster; but as it was, one man was killed and another seriously injured. In this case, it is suggested that the foundations were imperfect, that the subsoil was largely sand, and that some unsafe brickwork had been left from the demolished old building. The inquest will, no doubt, throw light upon those points; but there can be no doubt, says the *St. James's Gazette*, that the foundations of London houses are often most seriously unsatisfactory. Especially is this the case with the ordinary suburban villa. Look at the foundations as they are being laid, and you will realise that when the house is built it is rather the superimposed weight than the firm foundations which keep it standing. Speaking generally, London building is bad, and it is to be hoped that these repeated collapses will result in greater stringency of inspection.

MUCH discontent and no little alarm have been excited in the boards of electric lighting companies by the action of the Board of Trade in passing orders permitting vestries in London to erect electric lighting plant, in competition with the companies already in the field. It is not merely a case of the Metropolitan Company and the Vestry of Marylebone. Any vestry, it seems, may take up a hostile attitude to the companies operating in its district, and with the help of the Board of Trade, obtain power to establish opposition generating stations and plant.

ABOUT two weeks ago, in taking out foundations near the new dock at Barry, some interesting Romano-British fragments were found. The principal one, writes Mr. John Storr, is a circular fibula, or brooch, of bronze, with the patina in good condition. It measured about 1½in. in diameter, the pin in good condition, and in workable order. The body of the brooch was of bronze, cast, and afterwards filed in a plain pattern, showing about seventy-two little bosses on the front of the circumference, the pin not ornamented in any way. It is only a plain, serviceable article, but shows what was worn as a dress fastening in the Barry, or whatever its name was in the fifth or sixth century after Christ. The other two fragments are probably parts of a bronze torque, or similar neck ornament, which has been broken in the moving or digging out; it seems to have been without ornament of any kind, except a certain amount of twist in the wire-like parts which have been preserved.

THE foundation stone of Glasgow's new School of Art was laid recently by Sir Renny Watson. Lord Provost Richmond, who presided, said that the ceremony marked a red-letter day for the Glasgow School of Art, and an epoch for the city itself. The appreciation of Art in Glasgow, as well as in other manufacturing centres, he continued, had been very slow in growth. The school, in common with similar institutions throughout the country, had had an almost continuous struggle to exist. By the liberality of the Bellahouston Trustees, who had in addition granted a sum of £4000 towards the building fund, a free site, valued at £6000, had been secured. To

this the Corporation added £5000, and through the exertions of Mr. James Fleming and the other governors a further sum of £6000 had been raised, making a total building fund of £15,000. This, however, would not enable the scheme to be completed, a further sum of £10,000 being required.

THE use of electricity in Italy, both for lighting purposes and as a motive-power, is constantly extending, and there is consequently an ever increasing demand for all kinds of electrical appliances connected with this development. Some of these are now made in Italy, but by far the greater part come from Switzerland and Germany, two countries which appear to have made this industry, which has undoubtedly a splendid future before it, quite a speciality of their own, and they must find it a very profitable one. British engineering firms do not seem to be making any effort to secure a share of this business in Italy. In 1899 the centenary of Volta's discovery of the electric pile is to be celebrated in Como, his native town, by an international exhibition of electrical appliances, which will no doubt be most important and interesting.

THE Midland Railway Company intends to erect a great central station on the site of Christ's Hospital. It would, no doubt, be an admirable spot for the purpose; but Londoners will ask themselves how the traffic in that neighbourhood, already busy enough, is to be rearranged. The confluence of the Old Bailey and Newgate Street is a very crowded spot. The Old Bailey is narrow, and receives an enormous amount of heavy traffic, with the consequence that there are frequent blocks. Past Christ's Hospital an endless stream of omnibuses pours from morning to night. What will happen with a great railway station on that spot? Every hour hundreds of cabs would head across Newgate Street to or from the Old Bailey, since we must realise that the terminus of a great line placed in so central a position would speedily become one of the busiest stations in London. From time to time we hear something about the demolition of Newgate. If this railway project is carried out, that demolition will become imperative. The Old Bailey could then be widened to any extent—it is already quite wide at the northern end. But, short of some such rearrangement, a great station in that neighbourhood would be a terrible nuisance.

LORD ALDENHAM having applied for a faculty for authority to complete the work of restoring the High Altar screen at St. Albans Cathedral, the Registrar of the Diocese held a Court at the cathedral for the purpose of hearing objections thereto. It would seem that as long ago as 1884 Lord Aldenham commenced restoring the screen, but when a portion of the work had been accomplished Lord Grimthorpe raised objections to the carrying out of certain of the proposals, and as he possessed a faculty which covered the whole building his objections were upheld. Two faculties were subsequently granted to Lord Aldenham, but he did not complete the restoration, and he now petitions for another empowering him to vary the original design. At the Registrar's Court no opposition to this alteration was made, and his lordship, who has already spent about £10,000 on the screen, will in all probability receive the desired faculty within the next few days.

IN reference to the condition of the atmosphere of the Parish Church of St. George the Martyr, owing to the large number of human remains that lie exposed in the crypt, the Public Health Committee has had samples of the air both in the crypt and the church analysed, and the report is that "it is of normal quality as compared with other metropolitan churches." But this surely does not put the matter in a very much more favourable light. It is generally believed that many of the older churches, especially in London, are anything but healthy. How could they be otherwise, with rotten coffins and decaying human remains lying about beneath the floors?

Hellenism and the Triumphal Arch in Christian Architecture.

By S. J. NICHOLL.

AT the time of the great triumph of the Roman empire, so completely had Hellenism conquered the peaceful Arts that the artistic forms which surrounded the Prince of Peace must have, to a great extent, been Hellenistic, this is evidenced by such works out of Greece proper as the rock excavations of Alexandria as well as by the rock cut tombs of Jerusalem. The Alexandrine work is interesting, not only for its beauty of design, but as shadowing forth a transeptal plan with a broad circular central area having a triple opening into it from what we may call the nave, and domed over, not structurally but in form. The tombs

IN THE VALLEY OF JEOSOPHAT

have similar architectural detail; and of singular interest are the so-called tombs of Absalom and Zachariah as examples of Jewish tombs, cut in the living rock and isolated by the cutting away of the rock around them. They are decorated by architectural embellishments, Ionic columns with the entablature as a cornice, and in the case of the larger one, the tomb of Absalom, with constructional additions, giving the whole at first sight the appearance of an erection; just as Constantine treated the tomb of our Lord. In these small works, as in their great temples, the Greek architects vigorously adhered to the column and its entablature, the glorified post and beam, and this not from ignorance of the convenient arch, but from the appreciation of the traditional forms as consecrated by usage, dignified and

ENNOBLED BY ARTISTIC TREATMENT,

and more impressive to them in the simple idea of repose and stability than was the active, restless arch. The dome, however, was shadowed out, as I have shown, in the rock-cut tombs of Alexandria, 23ft. in diameter, and long before had been constructed in form by overlapping rings in the treasury at Mycenæ. The portico of the Pantheon in Rome was erected twenty-seven years before our era, with its columns, entablature, and pediment, but the structure to which it forms the entrance with its great dome was not erected till the time of Hadrian, who died in A.D. 138. This is proved by the stamps on the bricks used in its construction; it was dedicated by Boniface IV. as a church in honour of the Blessed Virgin and all the Martyrs, but, as I shall show later on, Christian churches had been constructed from an early period in our era circular in plan. The selection of forms, not mainly for economical motives, but for æsthetic and traditional reasons, the

HELLENIC PRINCIPLE OF LIMITATION

or restraint pervades all good Art, and in the most perfect works of mediæval Architecture it is evident in the limitation of the great idea of the verticality, so strongly marked by aspiring arch, by buttress and pinnacle, but which, at the best period, is well restrained by horizontal features, by string courses, and parapets, by the roof, and by the well formed abaci to the capitals of the columns, so that a church of this period gives the idea, not merely of aspiring but of an upward struggle; symbolical of the Christian life. In the decadence the abacus is suppressed, and unrestrained license is given to verticality. It was the same in carved ornament; foliage was very sparingly used in Greek design, and in early Christian work where used is of purely conventional form; later on, when more freedom was given to the artist workman,

NATURAL FORMS WERE SUGGESTED,

evidence of a growing love for natural beauty; but in the decadence all restraint was removed and the wildest vagaries of imitation indulged in. Limitation in architectural construction is still happily to some extent acknowledged, as in the case of the iron girder which in appearance is excluded from our churches when employed to carry flat ceilings or

simulated domes; perhaps in the future it may be ennobled by artistic treatment as has been the arch, which suppressed by the Greek is triumphant in Christian Architecture gradually developed and dignified. In old St. Peter's in Rome the column and beam ruled in the front rank in the nave, whilst the side aisles were divided by arcades; St. Mary Major retains the trabeated colonade of the Ionic order with the regular entablature; whilst St. Paul's outside the walls has semicircular arches supported by columns of the Corinthian order; but all these churches agree

IN ONE GREAT FEATURE,

the triumphal arch, pre-eminent in all great churches erected since the time of Constantine as the entrance to the Sanctuary. Of the earlier incidence or intention of the triumphal arch I have in a previous paper* instanced the basilica in the Ostrian Cemetery, given by de Rossi, in his great work on the Roman Catacombs† as having the triumphal arch well principal marked by projecting piers, in which are formed two niches, corresponding to the two lateral exedrae of some old basilicas in one of which the sacred books used to be kept, and in the other the sacred vessels and all things necessary for the offering of the Holy Sacrifice; the Secretaria and Diaconicum, a rude imitation or continuation of what may have existed in previous structures of a period of peace, and to which I refer again as the type of a series of triumphal arches still existing in certain of our churches; the

CHURCH OF CASTLE RISING,

Norfolk, is one of these; here the western wall of the tower is carried by three semicircular arches, the central and wider one open in the usual manner, whilst the side ones are only recessed to about half the thickness of the wall, directly answering to the recesses in the catacomb basilica, except that they face the people, an arrangement impossible in the catacomb for want of space. The original use of these niches appears to have been changed in the thirteenth century at Castle Rising, when to the recess which I suggest would be the secretarium was added an enriched and purely ornamental pointed arch as a canopy, and a piscina; so that it then became a recess for a side altar. On this point it is interesting to note the erection of sacristies at this period; the sacristy and treasury of Wells below the chapter-house belong to a date between 1263 and 1284, and

THE GREAT SACRISTIES OF LINCOLN MINSTER, works of the thirteenth century, although identical in detail with adjoining work, were evidently commenced separately, as an after thought, required by a change in the ceremonial then taking place. Barfreston church, Kent,‡ so well known to ecclesiologists, has similar recesses in the same position; in other churches the three arches are open, repeating in idea the triumphal arches of the Romans, such as the one Constantine erected with artistic materials from earlier works to commemorate his own victory. These openings may have been fitted with curtains: an Anglo-Saxon ivory in the South Kensington Museum of the eleventh century shows an arch so fitted. This triple-arched idea was not allowed to rest by our artistic forefathers, but was developed into elegant structures, such as that in Stebbing Church, Essex. In this instance of fourteenth century date under one inclosing pointed arch, there is an arrangement of three openings in stonework, cusped and traceried, divided by two graceful shafts; the central portion of the work was shaved down and otherwise mutilated; Buckler says in the fifteenth century, to make way for a more gorgeous wooden rood-screen and loft; certainly in this case a misfortune. The same idea on a larger scale and more elaborately worked out may be seen in the cathedral of Drontheim, in Norway. Here the central portion remains, and has a doubly cusped

arch springing lower down on the shafts than the tracery; just as the Stebbing screen had; terminating in a pedestal, I presume for the rood. Another variety of this triple-arched idea may be seen forming the chancel arch at Wool, in Dorsetshire, near to Lulworth. In this instance the three arches carried by two slender columns rise to an equal height with a horizontal string above them; leaving a tympanum above for the painting. In some of the catacomb churches a beam supplied the place of the arch, as is shown in the beautiful restoration by de Rossi in the Crypt of the Popes in the cemetery of Callistus. In old St. Peter's they had the constructional triumphal arch as well as the trabeated screen; the beam idea is preserved to us in St. Mark's, Venice, and in our own mediæval churches we know how beautifully the Roman tradition of both arch and beam was continued in the chancel arch and rood-screen. I have followed out this triple arrangement in the chancel arch from the little catacomb basilica, 7ft. wide, to its full development in the choir entrance of Drontheim Cathedral; rather because this idea has not been so fully described, or perhaps so well-known as the great triumphal arches of the basilicas

THE ROMAN BASILICAS,

rich in architectural embellishments and adorned with mosaics; or the chancel arches of our own churches with the grand space above for painting afforded by the triangle of the open roof. Beyond the mere arch which divided the nave from the sanctuary, I think that the original designers considered the central towers, both of the cruciform and triple planned churches, as carrying out the triumphal idea; in this light we may consider the central octagon of Ely, as well as the dome of St. Peter's (the redeeming feature of the Renaissance) as among the noblest triumphal memorials ever erected, either in classic, mediæval or modern days. We may imagine the motive of the builders of such structures, when we read on the stiffening arches under the central tower of Canterbury Cathedral, the inscription: *Non nobis Domine non nobis*. A collection of such inscriptions would be a valuable testimony of the thoughts of the dedicators. That on the arch of Constantine's Vatican basilica, combined with the mosaics of our Lord with St. Peter and the Emperor, was to the effect that "Because the world, triumphant through Thy leadership, has risen to heaven, Constantine has founded this hall to Thy honour,"* whilst the inscription on

THE SCREEN IN ST. PAUL'S,

London, now removed to the north entrance, gave some credit to the seldom remembered architect.† The primitive dedication on the arch of St. Mary Major was "Sixtus, Bishop to the people of God," and the doorway of what is now the mosque of the Omayyades at Damascus,‡ after twelve centuries of use by the Mohammedans, carries the inscription in Greek, "Thy kingdom, O Christ, is an everlasting kingdom, and Thy dominion endureth throughout all generations." This doorway, 10ft. to 12ft. wide and double that in height, was the great doorway of the Roman temple which once occupied the site, and has now two smaller openings, one on either side, with semi-circular head, which Mr. Phené Spiers considers to have been originally niches cut through to form a triple entrance in A.D. 379, when the temple was converted into the Church of St. John the Baptist. For

AN EARLY CHRISTIAN DOMED CHURCH

I can go back to the first Christian emperor, who, in his zeal for church building and in the foundation of his new city, greatly influenced Art—he offered premiums to parents who had their sons educated as architects and was a powerful instrument in preserving for us Hellenistic traditions in Art. To Constantine is attributed§ the erection of the circular church of St. George at Thessalonica covered

* Downside Review, March, 1891.

† Roma Sotteranea. Bishop Brownlow and Provost Northcote.

‡ Eight miles from Canterbury; the erection of this church has been attributed to S. Theodore, but there is no mention of ecclesia or presbyter in the Domesday book.

* Quod duce te mundus surrexit in astra triumphans Hanc Constantinus Victor tibi condidit aulam.

† Si monumentum quaeris circumspice.

‡ Paper by Phené Spiers, read at the Institute of British Architects, 16th November, 1896.

§ "Byzantine Architecture": C. Texier, R. P. Pullan.

by a dome 80ft. in diameter; it was not, however, till Justinian rebuilt St. Sophia at Constantinople that a church with a great dome 110ft. in diameter, springing on pendentives from a square and carried by arches, the form I claim as the triumphal arched one, was erected; the creation of his architects Anthemius of Tralles and Isidore of Miletus. St. Irene at Constantinople, also re-erected by Justinian, is sometimes claimed as the first church with a dome raised on a drum, although Professor Aitchison points out that as it was much damaged by an earthquake between 717 and 741 the construction may not be the original one; be that as it may, the cathedral of the Holy Wisdom at Thessalonica is clearly the work of Justinian and of the school of his architect Anthemius who accompanied him in all his expeditions. This church has a central dome supported by four arches, has pendentives, and is raised on a drum pierced with windows. The dome, 34ft. in diameter, is adorned by a mosaic representation of the Ascension with the inscription

"YE MEN OF GALILEE,

why stand ye gazing up into heaven? This same Jesus, who is taken up from you into heaven, shall come as you have seen him going into heaven." If we have to thank Byzantium for this continuation and development of Art, we have also to lament the iconoclastic persecutions which endeavoured to destroy it and drove mosaicists and illuminators to Rome, which, in the eighth century, was the refuge of Art: although in the ninth "the iron age,"* as it has been termed, when triumphal arches were changed into forts, resort was necessary to Byzantium for the bronze gates now in the sacristy of St. Paul's, with niellos of silver, the work of a Greek monk. The traditions of Byzantine Art were carried on in Venice in the Church of St. Mark, built on the model of Justinian's destroyed church of the Apostles at Constantinople and elsewhere, as at Perigieux churches were built with the same motive, the raised triumphal cupola. In the continued development of the church building art, the dome was in the west, set aside through the inventive genius of the northern architects. The monastic orders retained, through their organisation and

BY THEIR CULTURE,

touch with Hellenism, whilst the lay architects, who took up and continued their work as church builders, were thrown more upon their own resources, and local traditions; and Gothic Architecture was developed, as we have it, with its inheritance of the past, a new skill in construction and a power of invention in form and arrangement which gave to our cities their grandest enrichments, the great central towers as the triumphal arches of mediæval Christianity. I have already mentioned these towers in this light, so pass on to what I take to be essays with the same motive of design in portals and façades. I have already instanced the addition made to the Roman doorway of the temple at Damascus of two smaller openings to bring it into the triple form of the triumphal arch when made to be the entrance to a Christian church, and at St. Mark's, Venice, the bronze horses, despoiled from the arch of an emperor, were made to crown the doorway of the church in triumph, and the entrances to churches such as S. Trophime Arles are veritable triumphal arches, noble in conception and with the

ARCH AND COLUMN HARMONIOUSLY UNITED, a feat never completely achieved in classic structures. From the portal to the entire façade was a natural growth, my space only allows me to adduce two, as falling in with my theme, Wells and Peterborough, and I select these because greater variations in cathedral façades can hardly be imagined, although I claim them as but different renderings of similar inspirations. The west front of St. Peter's great English cathedral is, as we all know, a composition of three wide and lofty arches rising to the spring of the gables and deeply recessed, it is a portico in fact, as well

as a triumphal arch; a simpler, bolder, more artistic treatment was never conceived, it is of the noblest order, the idea is so evident that I need not dwell upon it. The façade of Wells on the contrary is a crux, it is criticised as being but a screen, not in any way the natural following of the structure behind it—my suggestion is that it was really intended to be a version of the Greek screen, the triumphal screen bearing entrance to the sanctuary. The Iconostasis is a colossal screen occupying the whole width of the church, and is described as a

REPRESENTATION OF THE CELESTIAL KINGDOM.

In its architectural composition it is divided into bands, the lower one always having three doorways; the upper ones being series of niches one over the other filled with figures, the topmost representing the Blessed Trinity, the others in a certain order, our Lord, the Blessed Virgin, the Archangels, Patriarchs and Apostles; the central doorway has a representation of the Annunciation. In the complete screen, in addition to these bands of figures, there is one band of niches or panels of smaller size, containing subjects from the life of our Lord. Now in the façade of Wells we see, firstly, the horizontal band at the base, pierced by three doorways, the central one being adorned, not, indeed, by the first joyful mystery, but by the glorious one of the Coronation. Above are horizontal bands of niches, containing statues, one over the other carried across the whole façade in the buttresses, and even continued in the broad piers, so unusual at this period of design, which divide the lancet windows; above these bands there is a smaller band of panels with groups of figures as in the Iconostasis, but not containing scenes from the life of our Lord, but naked figures in various attitudes obviously representing the triumph over death at the Resurrection, above this there are rows of figures again

OF THE HEAVENLY HIERARCHY

and the twelve Apostles; crowning the whole, the fragment remains of a large figure, presumably of our Lord in judgment and triumph, completing the poem which commences with the coronation of the Blessed Virgin, whose body was, by a singular privilege, assumed to glory before the general resurrection. The work was erected by Joceline de Wells, and dedicated in 1239. It is contemporary with Salisbury, but unfortunately, not like that cathedral, completed with one idea. In the upper part of the towers, built at the end of the fourteenth and commencement of the fifteenth centuries, no attempt to carry out the original idea was made; and whilst in the beautiful arrangement of the altar end with the open arches to the Lady chapel, no image bearing rearedos would seem to be contemplated, in the later work above there is an arrangement of niches and statues, perhaps to compensate for the omission. We do not know who conceived this great work; the general idea is rather that of a contemplative religious than of an artist. Perhaps he was

A GLASTONBURY MONK,

for Jocelyn till 1218 was Bishop of Glastonbury as of Wells. For the designers and workers of the details there were cementarii at Wells of the names of Lock, Norreys, and Noreis (Dean Church notes that Ganfridus de Noiers was the name of St. Hugh's architect at Lincoln), and one Deodatus. A member of the family of Buneton was established in Glastonbury in 1249, and in Edward II.'s time de Buneton the sculptor was possessed of houses and lands in Glastonbury. Another name is found at Wells famous for architectural work, Elias de Derham, known at Salisbury as Canon, rector ecclesiæ and architect between 1220 and 1229. He was known at Canterbury as one of the incomparable artificers of the new shrine of St. Thomas in 1220, and at Winchester as master of the works in the King's Hall 1230-6*. Of the names of these, as of so many artists, we have chance records, but their works live after them. Dean Church, in his "Chapters on the Early History of the Church of Wells," says:

* Dean Church: Wells Cathedral.

"Generation after generation saw the deeply recessed niches, the six hundred tabernacle gradually filled with sculptured imagery telling the whole tale of earth and heaven of man's fall and resurrection, of the Lord's advent in mercy and in judgment, and of the long roll of saints and worthies of the race, their own land." My explanation would take a more limited view of the intention. Mr. F. C. Dollman, who was working as a pupil of Augustus Pugin, early in the thirties at Glastonbury, tells me that his fellow pupil, Benjamin Ferrey, in 1870 discovered the presunably to guide the masons in placing the statues, the figures and sculptures north of the centre were marked on the back with

ARABIC NUMERALS,

while those on the south had Roman numerals evidence of system in the arrangement. Going from mediævalism to the Hellenism of the Renaissance, we find the designers working on very different lines to those of the earlier Christian architects we have been considering ancient forms which had lost their meaning were again used, and the spirit of the artist may be exemplified by the Florentine sculptors who made the gates for the basilica of St. Peter's fixed in 1445, and still existing. The Pope may have selected the subjects for the main panels; figures of our Lord and of the Blessed Virgin, and events from the life of St. Peter, and in the narrower panels of the reign of the Pope; but in the more decorative portions naturally he would leave the artist to follow their own bent, resulting in the introduction of Paganism with subjects such as that of Leda and the swan. Christian Art was for a long period kept alive in Italy by artistic workers, such as the Marmorari of the 12th century and the Cosmas of the following one. Those lovely cloisters, tabernacles, pulpits, tombs, and other such works of ecclesiastical Art, exemplify their style. Some of the smaller works from

DESECRATED CHURCHES

now enrich our museums. It was in the Pontificate of Innocent III. (1198-1216) that the cloisters of St. Paul outside the walls and of St. John Lateran were commenced. The study of Hellenic Art had a fresh impulse in Italy when some antique sarcophagi came under the notice of Nicola Pisano, but the workers in Art now were painters, sculptors, and goldsmiths rather than architects. I Arnolfo di Lapo, from whose plans the Duomo of Florence was commenced in 1280, had possessed the architectural sentiment of the Northern church builders, we might have possessed a work outrivalling the central octagon of Ely, constructed in marble, and Giotto's tower would not have stood alone in its beauty of detail. We do not know, however, if Arnolfo had any idea how the central octagon of his church was to be covered, and it was left to Brunelleschi to project the revival of the cupola supported on a drum; and to Michael Angelo came the opportunity and glory of designing the crowning dome of the work of that of St. Peter's. The actual erectors under Sixtus V. were Giacomo della Porta and Fontana, who heightened the section, making it the form of a pointed arch instead of hemispherical, to give support to the stone lantern, not sufficiently, unfortunately, to secure stability, as resort had to be taken to the iron band, as in so many cases in Italian arched work, to the iron tie. The triumphant recital on the base of the dome of the foundation of the Church of Christ on the rock of St. Peter need not be recited. With St. Peter's pointed arch, dome, the natural outcome of a great phase of Christian Art, even if clothed in classic detail as a golden link of continuity, I close my article.

THE foundation-stone has been laid of new infirmary which is about to be erected by the Central London Sick Asylum District Board. The estimated cost of the new buildings is £95,510, or, with the addition of £12,428 for the site, a total of £107,938. The infirmary will, when completed, provide accommodation for 274 patients, and the site allows ample room for any extension that may become necessary.

* Le Vatican; article by Perati, "Les Papes et le Arts."

R.I.B.A.

PROFESSIONAL CHARGES OF ARCHITECTS.

THE ANNUAL ELECTIONS.

SEVERAL matters of importance were dealt with at a business meeting of the Royal Institute of the British Architects, held on Monday week. Chief among them was the consideration of the revised Institute paper on "The Professional Practice as to the Charges of Architects." The schedule as sanctioned by the Institute and confirmed at a general conference of architects of the United Kingdom in 1872, is given in the Kalendar. As now revised, the schedule runs as follows:—

1. The usual remuneration for an architect's services except as hereinafter mentioned is a commission of 5 per cent. on the total cost of works executed under his directions. Such total cost is to be valued at as though executed by a builder with new materials. This commission is for the necessary preliminary conferences and sketches, approximate estimate when required (such, for instance, as may be obtained by cubing out the contents), the necessary general and detailed drawings and specifications, one set of tracings and duplicate specification, general superintendence of works, examining and passing the accounts, exclusive of measuring and making out extras and omissions. The clerk of the works should be appointed by the architect, his salary being paid by the client.

2. This commission does not include the payment for services rendered in connection with negotiations relating to the site, or in surveying it and taking levels, making surveys and plans of buildings to be altered, making arrangements in respect of party-walls and rights of light, or for drawings and correspondence with local and other authorities, or consequent on the failure of builders to carry out the works, for services in connection with litigation or arbitration, or in the measurement and valuation of extras and omissions. For such services additional charges proportionate to the trouble involved and time spent are made.

3. In all works of less cost than £1000, and in works requiring designs for furniture and fittings of buildings, or for their decoration with painting and mosaics, sculpture, or stained glass and other like works, and in cases of alterations and additions to buildings, 5 per cent. is not remunerative, and the architect's charge is regulated by special circumstances and conditions.

4. When several distinct buildings, being repetitions of one design, are erected at the same time from a single specification and one set of drawings and under one contract, the usual commission may be charged on the cost of one such building, and a modified arrangement made in respect of the others; but the arrangement does not apply to the reduplication of parts in one building undertaking, in which case the full commission is to be charged on the total cost.

5. If the architect should have drawn out the approved design complete, with plans, elevations, sections, and specification, the charge is 2½ per cent. upon the estimated cost. If he should have procured tenders in accordance with the instruction of his employer, the charge is ½ per cent. in addition. These charges are exclusive of the charge for taking out quantities. Preliminary sketches and interviews, where the drawings are not further proceeded with, are to be charged for according to circumstances.

6. The architect is entitled during the progress of the work to payment by instalments on account at the rate of 5 per cent. on the amount of the certificates when granted, or alternatively on the signing of the contract, to half the commission on the amount thereof, and the remainder by instalments during their progress.

7. Should the client, having approved the design and after the contract drawings have been prepared, require material alterations to be made, whether before or after the contract

has been entered into, extra charge should be made in proportion to the time occupied in such alterations.

8. The charge per day depends upon an architect's professional position, the minimum charge being three guineas.

9. The charge for taking a plan of an estate, laying it out, and arranging for building upon it, is regulated by the time, skill, and trouble involved.

10. For setting out on an estate the position of the proposed road or roads, taking levels, and preparing drawings for roads and sewers, applying for the sanction of local authorities, and supplying all necessary tracings for this purpose, the charge is 2 per cent. on the estimated cost. For subsequently preparing working drawings and specifications of roads and sewers, obtaining tenders, supplying one copy of drawings and specification to the contractor, superintending works, examining and passing accounts (exclusive of measuring and valuing extras and omissions), the charge is 4 per cent. on the cost of the works executed, in addition to the 2 per cent. previously mentioned.

11. For letting the several plots in ordinary cases the charge is a sum not exceeding a whole year's ground rent, but in respect of plots of great value a special arrangement must be made.

12. For approving plans submitted by the lessee, and for inspecting the buildings during their progress, so far as may be necessary to ensure the conditions being fulfilled, and certifying for lease, the charge is a percentage not exceeding 1½ per cent up to £5000, and above that by special arrangement.

13. For valuing freehold, copyhold, or leasehold property the charge is—

On £1,000 ..	1 per cent.
Thence to £10,000 ..	½ "
Above £10,000 ..	¼ " on residue.

In valuations for mortgage, if an advance is not made, one-third of the above scale. The minimum fee is three guineas.

14. For valuing and negotiating the settlement of claims under the Lands Clauses Consolidation Act or other Acts for the compulsory acquisition of property, the charge is on Ryde's scale as follows:—

On Amount of Settlement, whether by Verdict, Award, or otherwise.

Amt.	Gs.	Amt.	Gs.	Amt.	Gs.	Amt.	Gs.
£		£		£		£	
100	5	2,200	24	5,200	39	8,200	54
200	7	2,400	25	5,400	40	8,400	55
300	9	2,600	26	5,600	41	8,600	56
400	11	2,800	27	5,800	42	8,800	57
500	13	3,000	28	6,000	43	9,000	58
600	14	3,200	29	6,200	44	9,200	59
700	15	3,400	30	6,400	45	9,400	60
800	16	3,600	31	6,600	46	9,600	61
900	17	3,800	32	6,800	47	9,800	62
1,000	18	4,000	33	7,000	48	10,000	63
1,200	19	4,200	34	7,200	49	11,000	68
1,400	20	4,400	35	7,400	50	12,000	73
1,600	21	4,600	36	7,600	51	14,000	83
1,800	22	4,800	37	7,800	52	16,000	93
2,000	23	5,000	38	8,000	53	18,090	103
						20,000	113

Beyond this Half-a-Guinea per cent.

The above scale is exclusive of attendances on juries or umpires, or at arbitrations, and also of expenses and preparation of plans.

15. For estimating dilapidations and furnishing or checking a schedule of same, the charge is 5 per cent. on the estimate, but in no case less than two guineas. For services in connection with settlement of claim by arbitration or otherwise, extra charges are made, under Clause 8.

16. For inspecting, reporting, and advising on the sanitary condition of premises, the charge must depend on the nature and extent of the necessary services rendered.

17. In all cases travelling and other out-of-pocket expenses are paid by the client in addition to the fees. If the work is at such a distance as to lead to an exceptional ex-

penditure of time in travelling, an additional charge is made under Clause 8.

18. When an architect takes out and supplies to builders quantities on which to form estimates for executing his designs, he should do so with the concurrence of his client, and it is desirable that the architect should be paid by him rather than by the builder, the cost of such quantities not being included in the commission of 5 per cent.

The paper was discussed and the debate adjourned for further consideration at a meeting to be held on the 27th inst.

THE ANNUAL ELECTIONS.

Other important business included the annual elections.

THE COUNCIL.

The Council for the year of office 1898-99 were declared to be duly elected as follows:—

PRESIDENT.—Professor Aitchison, R.A.
VICE-PRESIDENTS.—William Milner Fawcett, M.A.Cantab., F.S.A.; Henry Louis Florence; Ernest George; and Edward Augustus Gruning.

HON. SECRETARY.—William Emerson.
MEMBERS OF COUNCIL.—John Belcher; Thomas Blashill; James Brooks; John McKean Brydon; William Douglas Caröe, M.A.Cantab., F.S.A.; Campbell Douglas (Glasgow); John Alfred Gotch, F.S.A. (Kettering); Alexander Graham, F.S.A.; Benjamin Ingelow; Edward William Mountford; Beresford Pite; John Slater, B.A.Lond.; Percival Gordon Smith; Richard Phené Spiers, F.S.A.; Henry Heathcote Statham; Leonard Stokes; Paul Waterhouse, M.A.Oxon.; and Aston Webb, F.S.A.

ASSOCIATE-MEMBERS OF COUNCIL.—Arthur Smyth Flower, M.A.Oxon, F.S.A., and Henry Thomas Hare.

REPRESENTATIVES OF ALLIED SOCIETIES.—Robert Isaac Bennett (Manchester Society); William Larkins Bernard (Bristol Society); Albert Nelson Bromley (Nottingham Society); John James Burnet, A.R.S.A. (Glasgow Institute); Thomas Drew, R.H.A. (Royal Institute of Ireland); Charles Busted Fowler (Cardiff, South Wales, and Monmouthshire Society); James Hine (Devon and Exeter Society); Leslie Ower (Dundee Institute); and Albert Edwin Sawday (Leicester and Leicestershire Society).

REPRESENTATIVE OF THE ARCHITECTURAL ASSOCIATION (London).—George Halford Fel-lows-Prynn.

THE STANDING COMMITTEES.

The following Fellows and Associates were declared duly elected to serve on the respective Standing Committees for the ensuing year of office, viz.:—

ART STANDING COMMITTEE.—*Fellows.*—John Macvicar Anderson, F.R.S.E.; James Brooks; John McKean Brydon; William Douglas Caröe, M.A.Cantab., F.S.A.; Ernest George; Edward William Mountford; Beresford Pite; Henry Heathcote Statham; Alfred Waterhouse, R.A., LL.D.; and William Young.

Associates.—Robert Shekleton Balfour; Owen Fleming; James Siewright Gibson; Henry Thomas Hare; George Campbell Sherrin; and John William Simpson.

LITERATURE STANDING COMMITTEE.—*Fellows.*—Henry Louis Florence; Alexander Graham, F.S.A.; Benjamin Ingelow; John Tavernor Perry; William Alfred Pite; Sydney Smirke; Richard Phené Spiers, F.S.A.; Henry Heathcote Statham; Paul Waterhouse, M.A. Oxon.; and Ralph Selden Wornum.

Associates.—Arthur Thomas Bolton; Arthur Smyth Flower, M.A. Oxon., F.S.A.; Andrew Noble Prentice; Ravenscroft Elsey Smith; Leslie Waterhouse, M.A. Cantab.; and Percy Scott Worthington, M.A. Oxon.

PRACTICE STANDING COMMITTEE.—*Fellows.*—Thomas Batterbury; Samuel Flint Clarkson; Thomas Harris; George Hubbard; Alexander Henry Kersey; Joseph Douglass Matthews; Walter Hilton Nash; James Osborne Smith; Charles James Smithem; and Edmund Woodthorpe, M.A.Oxon.

Associates.—William H. Atkin-Berry; Charles Henry Brodie; Francis Thos. Wilberforce Goldsmith; Herbert Hardwicke Lang-

ston; Augustus William Tanner; and William Henry White.

SCIENCE STANDING COMMITTEE.—*Fellows*.—Lewis Angell, M.Inst.C.E.; Hampden William Pratt; John Salmon Quilter; Herbert Duncan Searles-Wood; William Howard Seth-Smith; Percival Gordon Smith; Alfred Saxon Snell; Lewis Solomon; William Charles Street, Assoc.Inst.C.E.; and Benjamin Tabberer.

Associates.—Sydney Benjamin Beale; Henry William Burrows; Max Clarke; Bernard John Dicksee; Matthew Garbutt, Assoc.-M. Inst.C.E.; and George Pearson.

The Auditors are Messrs. Zeph. King and Frederick William Marks.

MEMBERSHIP ELECTIONS.

The following candidates were elected to the rank named:

As FELLOWS.—Michael Francis Cavanagh [A., qualified 1888], Vice-President of the West Australian Institute of Architects; of Eagle Chambers, Perth, West Australia. John James Thomson [A.]; of 1, Durham Place, Chelsea. Charles Edward Bateman [A., qualified 1895], President of the Birmingham Architectural Association; of 81, Edmund Street, Birmingham; and Castle Bromwich. James Souttar, President of the Aberdeen Society of Architects; of 42, Union Street, Aberdeen; and 6, Beaconsfield Place, Aberdeen. Frederick William Lacey, M.Inst.C.E.; of the Municipal Office, and Alum Chine, Bournemouth. George Campbell Sherrin [A.]; of 33, Finsbury Circus; and Ingatestone, Essex. William Banks Gwyther, Assoc.M.Inst.C.E. [A., qualified 1886]; of the Public Works Department, Bengal Secretariat, Calcutta.

As ASSOCIATES.—George Benson [Qualified 1885], President of the York Society; of Nunthorpe Avenue, York. Frank Peck [Qualified 1895]; of Roseneath, Alexandra Road, Kingston Hill.

As HON. FELLOW.—Sir Edward John Poynter, President of the Royal Academy; 28, Albert Gate, S.W.

WHILE the ringers in the curfew tower at Windsor Castle were ringing the last peal for the Duke of York's birthday, the axle from which the big tenor bell was swinging suddenly broke, and the huge mass of metal fell on to the strong old beams below, where it remained. The ringers at the time of the occurrence were in the lower chamber. The bell was cast early in the seventeenth century, and weighs about 36cwt.

THE case of Fasnacht v. Knight-Gregson was heard in the Probate, Divorce, and Admiralty Division before Mr. Justice Phillimore and a Common Jury a few days ago. It was an action for the conversion of certain architectural plans. The plaintiff, an architect, of 17a, Great George Street, Westminster, was negotiating during 1893 and 1894, on behalf of a Mr. Britton, for the purchase of a piece of land in Tite Street, Chelsea, with the defendant, who was the solicitor to the freeholder. The plaintiff prepared plans of a block of flats to be erected on the land, which plans he alleged were based on a somewhat new principle, and which he entrusted to the defendant for the approval of the owner. The negotiations ultimately broke down, but the plans remained at the office of the defendant, 4 and 5, Adam Street, Adelphi. In October, 1896, the defendant, without, as the plaintiff alleged, any authority from him, handed over the plans to Messrs. Walton and Lee, a firm of auctioneers, with the intent that they should be used for exhibiting to intending purchasers of the land, and so aiding a sale of it by auction or private treaty. The plans were exhibited to a gentleman, who subsequently purchased the land, and plaintiff alleged that some features were borrowed from them and embodied in new plans. He claimed £105 as the value of the plans.—The defendant denied the truth of the plaintiff's story. The plaintiff asked him to show the plans to intending purchasers in order that the plaintiff might be employed as architect. It was for this reason that he sent the plans to Messrs. Walton and Lee.—Two witnesses from that firm deposed that the plaintiff had himself asked them to exhibit the plans.—The jury returned a verdict for the defendant, and judgment was entered accordingly, with costs.

Professional Items.

ABERDEEN.—The City Hospital Committee of the Aberdeen Town Council has had under consideration the proposed extension of the administrative block at the hospital. Mr. Rust, city architect, has submitted amended plans showing ample accommodation for nurses and servants on the main block and also showing the extension of the north wing of the present reception block. The total cost of the extensions is estimated at £4560, made up as follows:—Extension of the administrative block, £4000; furnishings, £400; and extension of the diphtheria ward, £250. The committee generally approved of the plans.

ABERCYNON.—The tender of Mr. Games, builder and contractor, of Abercynon, has been accepted by the committee of the new Welsh Congregational Chapel. The contract price is £2500, and the architect is Mr. A. O. Evans, Pontypridd.

BANGOR.—The foundation stones of a new church in Hamilton Road, which is well on in the course of erection, were laid a few days ago. The new edifice has been designed with special view to ultimate extension. The general plan of the church is horseshoe shape, this plan having been found in other places to be more comfortable, and to give better acoustic properties than the usual rectangular form. The first block will accommodate about 400 on the ground floor, and about 300 in the galleries, and the future block, in the form of a second transept, will give accommodation for about 300, so that the church is designed to accommodate 1000 persons. The front entrance vestibule is in the form of a large room, with inner lobbies, right and left. Although the church is on a wide plan, there will be no inconvenient columns to obstruct the view. The galleries will be carried on steel cantilever girders, and the roof trusses will also be of steel. It is proposed to fit up the interior woodwork in pitch pine, and the walls of the building in local stone, with Scrabo stone for dressings. A corner tower has been provided, to which it is possible to add a spire in the future, if desired. The building has been designed in the perpendicular period of Gothic Architecture. The architect for the church is Mr. Wm. J. W. Room, Belfast. The contract is in the hands of Mr. James Colville, builder and contractor, Bangor.

BARNSELY.—The foundation stones of a new theatre on the site of the old building in Wellington Street, Barnsley, were laid a few days ago. The new erection is estimated to cost £10,000 exclusive of the site. It is being built in the latest style from plans by Mr. W. Emden, London, and under the local supervision of Mr. W. Crawshaw, architect.

BELFAST.—The laying of the memorial-stones of the new Presbyterian Church in the course of erection at Woodvale, Belfast, was performed some few days ago. The new church has been designed to occupy an excellent site facing Shankill Road, adjacent to Woodvale Park. As one side of the building is turned to the Whiterock Road, a square tower with more spire is placed at the angle, and will form a conspicuous landmark owing to its elevated position. A plan of a simple nave and aisles, with shallow transepts occupying an oblong space of about 90ft. by 70ft. was adopted. An imposing feature consists of the doorway, placed in the centre of the gable with played jambs and richly moulded arches. The contractor for the entire work is Mr. Thomas McMillan, Ormeau Avenue, and the architects are Messrs. Young and Mackenzie, Belfast.

COALVILLE.—The foundation of a new church in course of erection at Bardon Hill, near Coalville, has been laid. The contractor is Mr. H. Bland, of Leicester, and the amount of the contract approximately is £5000. The building is 95ft. in length by 57ft. in width,

and will when completed seat about 200 people. The style is geometrical decorated. There will be a tower 85ft. in height.

DUNDEE.—The plans of the Victoria Hospital for Incurables, Dundee, have been approved by the Works Committee of the Town Council. The plans have been designed by Mr. T. Murray Robertson so that the building can be extended by means of wings. The towers contain bathrooms, lavatories, &c., and the present building provides ample accommodation for administrative purposes, and for any extensions that may be necessary.

GATESHEAD.—A new parish hall is being built in connection with the sanctuary known as that of the Venerable Bede. It is of stone, and will match the older erection. Sufficiently large to accommodate a few hundreds of people, its cost will be something like £1500.

GILVACH.—A new mixed school was opened a short time ago at Gilvach, near Bargoed. The work has been carried out by Mr. Thomas Williams, builder, Bargoed, under the supervision of Messrs. James and Morgan, architects, Cardiff. The accommodation is at present for 155 children, but the building will be capable of an extension for 100 more. The school has been built at a cost of £2208.

GLASGOW.—Building operations have now commenced in connection with the new parish church and halls, Hutchesontown, Glasgow. The main frontage is to Rutherglen Road, the design is semi-Romanesque, and will be a handsome structure. The church provides accommodation for 950, having side and back galleries, organ chamber, session house, vestry, &c. The hall is seated for 600, with library, kitchen, committee rooms and lavatories. The total estimated cost is £6274 6s. 7½d.

GOVAN.—At a Dean of Guild Court at Govan, Mr. A. Macdonald was granted the necessary permission to erect new municipal buildings and offices and public halls on a sight at the junction of Govan Road, Summertown Road, Carmichael Street, and Merryland Street. There will be a large hall capable of accommodating 2000 persons, with the usual cloak and retiring-rooms adjacent. The cost of the buildings will be £34,000.

HACKENTHORPE.—The foundation-stone of a district church at Hackenthorpe was laid recently. Mr. J. D. Webster, of Sheffield, is the architect, and Messrs. Kirby and Drabble, of Mosborough, the contractors for the permanent church now in course of erection. It was decided to build the nave only of the church at first, at a cost of £1415.

LEEK.—The committee have accepted the tender of Mr. Thomas Grace, of Leek, for the new offices, stores, bakeries, shops, assembly and board rooms, &c., of the new Co-operative headquarters, designed by Messrs. Wm. Sugden and Son. When fitted up and furnished it is estimated the cost will be about £3500. Mr. Johnson, C.E., of Macclesfield, will construct the ovens on his improved method. "Fair wages" clauses are incorporated by the architects in all these contracts. Recently the society erected the first section (costing £1000) of a new branch in Daton Street to the same architect's plans.

MORECAMBE.—With the rapid development of Morecambe comes a scheme, involving an expenditure of nearly £10,000. This is in the provision of new Board schools. The School Board has resolved to purchase about 6000 square yards of land from the London and North-Western Railway Company at a cost of £1 per yard. The site is practically in the centre of the town. The new schools are intended to supersede the present buildings in Anderton Street, which are somewhat unsatisfactory.

NEWBURGH.—A tenement of four two-room and kitchen houses is about to be erected in the Mount Pleasant district. The site chosen

as been acquired by Mr. A. Ross, builder, from Mr. T. S. Anderson. Each house is self-contained, while every modern convenience is considered. The plan is by Mr. Haggart, Junior, Elmside, Abernethy. Additions have been begun to the property of the Lindores Edge of Freemasons. Messrs. C. and L. Ower, architects, Dundee, were asked to prepare plans for an additional two flats. The first flat is to be a modern dwelling-house, while the top flat is to be devoted to a commodious ante-room, with lavatory accommodation.

NEWCASTLE.—A building exchange has been established in Newcastle on similar lines to kindred institutions in Glasgow and in various cities in other places. A limited liability company has been formed to carry on the exchange at Newcastle. The company has been formed with a capital of £10,000 in £1 shares. Four rooms have been set apart in the Arts Club for the use of the members of the Exchange. There are a large reading-room, in which all trade literature will be accessible; an office; and two rooms for the exhibition of trade samples.

NEWPORT (MON).—The tender of Mr. W. A.inton, builder and contractor, of Newport, has been accepted by the committee of the new church of St. John the Baptist, which is to be erected on a site given by Lord Tradegar on the left side of the Risa Road, Newport. The contract, which does not provide for a tower, is £7350.

NEWRY.—The Treasury authorities have agreed to commence the erection of the new Post Office at Newry. It is now over two years since a promise was obtained from the Government that they would erect a new and more commodious building than at present exists, and last year a very fine site was purchased in Hill Street, close to the old Post Office. Ever since that the plans have been under consideration. A few months ago tenders were applied for, and the one sent in by Mr. Alex. Wheelan, builder, Newry, has been accepted, and the work will be gone on with immediately. The Commissioners want the plans altered to allow more room in the public office, in front, and they also want the building to be faced with granite, but so far the Treasury will not give way. Mr. Wheelan has presented three large Government contracts hand.

TULLAMORE.—The foundation stone of the new Catholic church at Tullamore was laid last week. The new church will be of large dimensions, calculated to seat 1600 persons with additional space for 500 more on special occasions. The cost is estimated at about 5,000. Mr. Wm. Hague, of Dublin, is the architect.

WESTLEIGH.—Westleigh, near Bideford, has extended well to its old church. Twenty years ago it was intended to substitute an organ for the harmonium. A difference as to who should be the builder caused an abandonment of the scheme, and the church was restored instead, and it may fairly be added, finely restored. When a new peal was placed in the belfry, and the churchyard enlarged; and a few days ago was dedicated an organ of splendid tone and ample power. The case is so designed that the main pipes discharge their sounds into the chancel without encroaching upon it. The organ also includes an oak screen to harmonise with the organ case, and the entire cost will be about £400.

WOLVERCOTE.—The formal opening of a new school at Wolvercote has taken place within the past few days. Besides the school buildings the scheme also includes the provision of a residence for the master and mistress, and this has been erected on the left side of the school, the total cost of the whole being about £2000. The building is in the ordinary scholastic style, being of red brick and Bath stone dressings, and roofed with Broseley tiles.

Views and Reviews.

THE LAW RELATING TO MARKETS AND FAIRS.

This book has been published to supply all the information useful to market owners and traders who frequent markets, and this information is set forth with as much clearness as the subject permits. An appendix gives the Markets and Fairs Clauses Act, 1845, the report of the Royal Commission on Markets, 1887, a list of statutes, and specimen table of tolls. It is always interesting to the architect to note the old customs and usages which originally suggested the different arrangements of different classes of buildings. There is no building with a more characteristic form than a market hall, and in this book before us may be found many customs now crystallised into laws which give the original meaning of many arrangements, which are now followed as a matter of habit. It is curious to note that where no stalls are fixed to the ground, the owner is not liable to be rated in respect of his profits. It would not occur to everyone that the absence of fixed stalls in old market halls is to be accounted for in this way. The more we know of the conditions governing the erection of any building, the better we understand it.

A. R. J.

"The Law relating to Markets and Fairs," by L. Gaches, Barrister. London: Eyre and Spottiswoode. Price, 2s. 6d.

ARCHITECTURAL PHOTOGRAPHY.

This little book consists of a reprint of articles which appeared in *The Amateur Photographer*. There are nine of them, beginning with Hints to Beginners, and passing on to discuss such questions as the effect of light, exterior and interior views, &c. It is illustrated by many photographs, serving as examples of the points under discussion. Being re-published as a volume of the *Amateur Photographer Library*, it is perhaps principally intended for the general amateur—amateur in Architecture as well as in photography—and as such, we are pleased with the author's endeavour to open his readers' eyes to the meaning and the poetry of the buildings upon which he operates. "Find out what your building means," says the author, "and endeavour to represent that." Better advice could not be given; but when we come to individual instances, the author has a way of labelling every view with its appropriate sentiment, thus—"The leading note of the porch at Dol is rest, of shelter and repose after exposure, but it is combined with desolation"; and then, again, he so expresses himself as to suggest that there is a sort of receipt for interpreting every possible sentiment or emotion. Thus, with reference to Dinan, the formula would be—to express "sheer weight and passive resistance," use "breadth of treatment and delicate tone gradation." With reference to Nuremberg: "Sombre, weird, and yet romantic"—"low tones and doubtful focus"; or, again, with regard to Ightham Church: "Retirement is conveyed in the photograph by gloom and under-exposure." For the amateur this may be all very well; the great thing is to get him to see that everything in a building means something, expresses something, that there is a sentiment of some sort in the design; but for the architect, who is alive to all this, it is perhaps just a little irritating. The chief value of the book to him will consist in the technical assistance it affords him in realising any effect he wishes to produce, and for this purpose any architect who uses the camera cannot fail to find some hints that will be useful. Anyone thinking of starting photography cannot do better than buy it.

A. R. J.

"Architectural Photography," by G. A. T. Middleton, A.R.I.B.A. London: Hazell, Watson, and Viney, Ltd., 1898. Price, 1s.

MR. H. WILLIAMS MELLOR, quantity surveyor, informs us that he has removed his address from 19, Craven Street, Northumberland Avenue, to 17, Buckingham Street, Adelphi.

Correspondence.

THE INSTITUTE EXAMINATIONS.

To the Editor of *THE BUILDERS' JOURNAL*.

DEAR SIR,—I would like to know the opinion of your readers as to the best means of preparing for the final R.I.B.A. examination. Living in the provinces there are no available lectures or classes—except building construction. The testimonies of study which may be done in London at the classes are only worked out after a lot of unnecessary reading. Do I hear someone exclaim "Get a coach?" Well, a coach no doubt is almost essential, but I do think the examiners (especially at London sitting) ought to make some allowance in examination for provincial students who have not the advantages of London men, or where an architectural school and professor exists. Office work, overtime, &c., ought also to be taken into consideration, and I think provincial students might have the rule, *re* passing the final within four years of the intermediate, extended to five. I advocate all students passing an examination before practising; but because a student may not get through the final with the four years, why make him sit all examinations over again, or, as the Institute rule says, his name shall be crossed off the list of students.—Faithfully yours,

"PROVINCIAL STUDENT."

Enquiry Department.

C.E.

To the Editor of *THE BUILDERS' JOURNAL*.

DEAR SIR,—Will you kindly inform me the meaning of the initials C.E. written after a man's name? I presume it is Civil Engineer, but can you tell me by what means a man becomes entitled to write this after his name, and how I can ascertain whether such person is entitled to ascribe himself as such?—Yours truly,

ANDREW FORD.

The initials "C.E." affixed by the owner to his name are usually intended to imply that he is practising as a civil engineer in a consultative capacity. Although a Bill was brought before Parliament some years ago with the object of rendering compulsory the registration and examination of architects and civil engineers, both professions still remain without official recognition or protection. Consequently it is open to any person to style himself "Civil Engineer" or "C.E.," and the term in itself does not necessarily imply qualification of any kind. Civil engineering is defined in the charter of the Institution of Civil Engineers as "being the art of directing the great sources of power in nature as applied in the construction of roads, bridges, aqueducts, canals, river navigation, docks, ports, &c., in the art of navigation by artificial power, in the construction of machinery, and in the drainage of cities and towns." Members (M.I.C.E.) and Associate Members (A.M.I.C.E.) before election are required to furnish proof that both their training and experience have been sufficient, and the same condition is attached to membership of the other important institutions representing distinct branches of civil engineering. Those who are entitled to use after their names letters which possess a recognised value, prefer such to the initials "C.E.," and the adoption of the latter as a sort of self-bestowed diploma carries no weight in the profession, although it may in some cases be misunderstood by the general public to imply membership of the Institution of Civil Engineers.

ON the application of the Kingston Corporation, the First Commissioner of Works has decided to widen the local entrance to Richmond Park, and the work is now in hand.

SOME quarrymen were opening a quarry at Penyfai, near Bridgend, when they came upon an old kiln which had been used in ancient times for drying corn. It is circular in form, and of sandstone, similar to the material used in building the Asylum.

Under Discussion.

WATER GAS AND ITS APPLICATION.

In the course of his lecture on "Water Gas and Its Application," before the Society of Arts, Professor Vivian B. Lewes estimated that 34,000 cubic feet of this gas might be obtained from one ton of coke. He also explained new processes by which the carbon was made to give 3.47 times as much heat as in previous experiments. One scientist working on this method had produced the gas, the Professor stated, at about 3d. per 1000 cubic feet. If corporations having control of the gasworks and the electric lighting of a town adopted this system of working, it was asserted that they would be able not only to give electrical power at a price far below that at which it was obtainable by other means, but to keep up the price of coke.

EDINBURGH ASSOCIATION'S EXCURSION.

The members of the Edinburgh Architectural Association, accompanied by the president, Mr. Thomas Ross, and the secretary, Mr. Hunter Crawford, held their annual excursion a few days ago, the place visited being Alloa. The party at once proceeded to inspect the palatial Public Baths and Gymnasium. Mr. John Burnett, A.R.S.A., Glasgow, the architect of the building, acted as guide. Alloa Park and Mansion were next visited, and, through the kindness of the Earl of Mar and Kellie, the excursionists were conducted over Alloa House and the beautifully laid out garden and grounds. His Lordship personally undertook this duty, and afterwards entertained the company to lunch in old Alloa Tower. In the afternoon visits were paid to Greenfield House and Inglewood, the architect of both, Mr. Sydney Mitchell, Edinburgh, giving all necessary explanations. The company also visited the Town Hall and Public Library, and Alloa Parish Church.

CONCERNING ELECTRICITY.

The annual meeting of the Municipal Electric Association was held at the theatre of the United Service Institution, Whitehall. Mr. A. H. Gibbings, the electrical engineer for Bradford, delivered the presidential address. He congratulated the members on the exceptionally rapid progress which electricity had made within the last two years. The growth of the business of electricity was much more rapid than that of gas supply. The electricity committees of municipalities were now dealing with electric tramways, street lighting, methods of charging for current, and the extension of existing electricity works, with an eye to a greater future development than was dreamt of five years ago. Mr. Hesford (ex-chairman of the electricity committee of the Southport Corporation) read a paper on "The Management of Electrical Undertakings by Local Authorities." Mr. J. A. Jeckell (borough electrical engineer, South Shields) on "Steam-Using Plant," and Mr. J. R. Blaikie, the chief assistant electrical engineer, Bristol, on "Switchboard Apparatus."

THE Postman's Park, or at least that portion of it which has been threatened by the builder, has been rescued by the parish of St. Botolph, Aldersgate. Under an arrangement which has now been made, £6000 will be paid for the western frontage, and the parish will have the option of paying the remaining £6000 within two years from midsummer.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABER (near Caerphilly).—For the erection of sixteen houses for the Panteg Building Society. Messrs. Griffiths and Jones, architects, Tonypandy:—
J. Bowen ... £2,120 J. P. Williams, Leng.
O. Evans, Sons, & Co. 2,928 J. Henrydd, nr. Caerphilly* £2,760
G. H. Leonard ... 2,928 J. Lewis ... 2,736
*Accepted.

BOURNEMOUTH.—For the erection of a new residence for Miss Seymour, at Southbourne-on-Sea, Hants. Mr. G. A. Birch Livesey, architect. Quantities by Messrs. Jennings and Goater:—
Miller and Sons ... £2,269 W. Hoare ... £2,194
Jenkins and Sons ... 2,236 J. McWilliam & Son* ... 2,149
F. Hoare and Sons ... 2,210
*Accepted.

FARNHAM.—For the erection of four cottages for Mrs. Kelly. Mr. J. A. Eggar, architect, 11, West-street, Farnham:—
James Kimber ... £1,330 10 Crosby and Co.,
A. J. Figg ... 1,320 0 Farnham* ... £1,198 0
*Accepted.

GOSPORT.—For erecting a house at Gosport, for Mr. H. Martin. Mr. W. H. Fry, architect, Gosport:—
Eans ... £3,045 Jones ... £2,440
Ward ... 2,927 Dash ... 2,549
Corke ... 2,700 C. Jobbins ... 2,543
Light and Son ... 2,659 J. Croad ... 2,384
Spriggins ... 2,650 C. Lear and Sons ... 2,310

GUILDFORD.—For erecting St. Saviour's Church, Guildford. Messrs. Henry S. Legg and Son, architects, Christ's Hospital, London:—

	For first portion.	For second portion.	Total.
Mitchell Bros.	£6,104	£4,715	£10,819
P. C. May	5,940	1,843	10,783
Kingerlee and Son	5,702	4,917	9,719
Stanley Ellis	5,646	4,348	9,994
F. Swayne and Co.	5,429	4,072	9,501
Dove Bros.	5,230	4,005	9,235
Higlett & Hammond	5,226	3,972	9,198
W. Smith and Son	5,193	3,963	9,156
F. Goddard	5,029	3,826	8,855

LEEK.—For erecting new head offices, stores, assembly and board room, bakery, &c., for the Leek and Moorlands Co-operative Society Ltd. Messrs. Sugden and Son, F.R.I.B.A., architects, Leek and Hanley. Quantities by the architects:—
George Ellis ... £3,332 James Heath ... £3,125
T. Godwin ... 3,227 W. Thorley ... 3,075
J. Bagnall ... 3,200 S. Warburton ... 2,685
J. Fielding ... 3,156 Thomas Grace* ... 2,660
*Accepted.

S. Salt ... Contract 1 only. ... £1,900

Contract 2 only.
Heath and Lowe ... £710 0 0 G. Hine ... £250 0 0
Bayley and Morris ... 613 13 4 T. Mackrell ... 462 15 0

Contract 3 only.
G. T. Stevenson ... £199 15 0 C. Robinson ... £174 0 0
E. Phillips ... 190 0 0 M. Carding ... 172 0 0
J. Ratcliffe ... 184 0 0 I. Heath ... 165 0 0

LONDON.—For building stabling, &c., Ever-street, Southwark, for Mr. C. Giles. Mr. Chas. Young, architect, London:—
Holland and Hannen ... £10,879 B. E. Nightingale ... £3,670
Mowlem and Co. ... 10,796 Thos. Boyce ... 8,583
A. Bush ... 8,798 Waring and Son ... 8,410

LONDON.—For erecting four shops in Askew-road, Shepherd's Bush, W., for Mr. T. H. Currie. Mr. A. T. Fullick, architect, 52, Eyot-gardens, Hammersmith, W.:—
F. G. Minter ... £3,549 0 0 T. W. Thomas ... £3,485 0
F. G. Minter ... 3,520 0 C. Johnson ... 3,479 0
B. Wimpey and Co. ... 3,432 10 T. Bendon ... 3,297 0

LONDON.—For pulling down and rebuilding "The Globe" public-house, New Compton-street, Soho, W., for Mr. L. Ellis. Mr. T. Walter Moss, architect. Quantities by Mr. A. J. Gate:—
Summerford and Son ... £3,950 W. Irwin ... £3,436
George Wade ... 3,833 C. Ansell ... 3,399
Drew and Cadman ... 3,597 Ham & Son (accepted) ... 3,297

LONDON.—For rebuilding 12, Jewin-crescent. Mr. L. Solomon, architect, 55, New Broad-street:—
Higgs and Hill ... £1,840 Perry Bros. ... £1,337
Holloway ... 1,756 Davies ... 1,330
Hall, Bedall, and Co. ... 1,530 Beer and Gash ... 1,287
Patman and Fotheringham ... 1,491 Consell ... 1,293
Reason ... 1,199

LONDON.—For the erection of house, Great Portland-street, for Mr. J. A. Mitchell. Mr. T. H. Smith, architect. Quantities supplied:—
Goode and Son ... £3,323 Webber ... £2,674
Beer and Gash ... 3,039 Staines ... 2,645
Holloway ... 2,930 N. Lidstone ... 2,617
Baxter ... 2,850

LONDON.—For the erection of a warehouse, No. 1, Paradise-row, Bethnal Green, E. Mr. Richard Peters, architect and surveyor, 73, Wool Exchange, E.C.:—
Salt ... £2,345 Marriage and Co. ... £2,100
Jarvis and Sons ... 2,115

LONDON.—For the erection of three shops and a beer-house, Ben Jonson-road, Stepney, E. Mr. Richard Peters, architect and surveyor, 73, Wool Exchange, E.C.:—
Salt ... £3,940 T. Parker ... £3,795
Jarvis and Sons ... 3,875

LOWESTOFT.—For additions, &c., to Town Hall, for the Town Council. Mr. G. H. Hamby, C.E., Town Hall, Lowestoft:—
Jno. Ashby ... £3,850 C. R. Cole ... £3,496
Allerton and Darl ... 3,800 G. E. Hawes, Norwich* ... 3,395
J. and B. Swatman ... 3,500
*Accepted.

MIDDLETON ST. GEORGE (Co. Durham).—For the erection of superstructure, &c., of private asylum. Mr. J. W. Dyson, architect, 67, Grey-street, Newcastle-on-Tyne. Quantities by the architect:—
S. F. Davidson ... £14,495 0 0 Thomas Beetham,
G. Marshall & Son ... 13,806 12 6 West Hartlepool* £13,160 5 0
J. G. Gradon ... 13,315 0 0 J. Dickinson ... 12,700 0 0
[All amended tenders.]

*Accepted. †Withdrawn.
NORTON (Co. Durham).—For the erection of school buildings at Norton, for the Norton School Board. Mr. W. H. Linton, architect, 13, Exchange, Stockton-on-Tees. Quantities by architect:—

A. J. Cooke ... £4,044 4 0 H. F. Linton and
W. Mitchell ... 3,943 5 3 Son ... 3,885 1 0
J. G. Gradon ... 3,919 0 0 W. C. Atkinson ... 3,739 7 0
J. Fletcher, Norton* ... 3,896 0 0
[Architect's estimate, £3,832 11s.]

NEWPORT.—For the rebuilding of premises, Nos. 12 and 122, Commercial-street, Newport, Mon., for Mr. Joseph Watkins. Messrs. Morgan and Hodge, architects and surveyors, Newport and Cardiff:—

C. Lock ... £2,320 D. Parfitt ... £2,194
A. Hazell ... 2,315 W. A. Linton ... 2,166
T. Westacott ... 2,315 T. G. Diamond ... 2,166
J. Linton ... 2,300 D. J. Davies ... 2,144
C. H. Reed ... 2,282 J. Moore ... 2,132
Lawson and Co. ... 2,279 G. F. Davies ... 2,099
W. C. Collier ... 2,200 J. Davies* ... 2,044
E. Richards ... 2,200
*Accepted.

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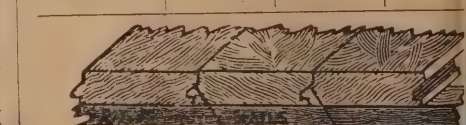
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NEWPORT.—For the rebuilding of premises, Nos. 29 and 30, Commercial-street, Newport, Mon., for Mrs. Coleman. Messrs. Morgan and Hodge, architects and surveyors, Newport and Cardiff:—
 John Linton .. £2,395 | Chas. Hy. Reed .. £2,390
 William Moore .. 2,370 | W. A. Linton .. 2,137
 G. F. Davies .. 2,330 | David Jones .. 2,065
 T. G. Diamond .. 2,235 | T. Westacott* .. 2,054
 John Moore .. 2,249 | *Accepted.

RIPLEY.—For the Hartshay, Marchay, and Waingroves Water Supply, for the Urban District Council of Ripley, Derbyshire. Quantities supplied by the surveyor, Mr. R. Argile, C.E., Ripley:—

Contract No. 1.—For Supply of Cast Iron Pipes.
 William Jones .. £1,750 9 3 | Butterley Co. Ltd.
 Clay Cross Co. .. 1,716 3 2 | Butterley Iron
 Coalbrookdale Co. .. 1,699 6 3 | Works, near
 Sheepbridge Coal .. 1,538 17 10 | Derby (accepted) £1,511 0 11
Contracts Nos. 2, 3, 4, and 5.—For Pipe-laying.
 William Jones .. £1,962 1 9 | Swindall & Moss £1,217 0 0
 Walter Jowlett .. 1,771 16 10 | Robert Holmes
 James Holmes .. 1,435 0 6 | and Co., Ches-
 H. H. Barry .. 1,350 0 0 | terfield .. 1,155 0 0
 *Accepted.

Contracts Nos. 3 and 5.—For Pipe-laying.
 Johnson & Beighton, Danesmoor, Chesterfield £926 4 2
Contracts Nos. 4 and 5.—For Pipe-laying.
 John Coupe, jun., Ripley, near Derby .. £1,197 16 0

SHOEBURYNESSE.—For the erection of four cottages, Woking-road, for Miss Knapping. Messrs. Burles and Harris, architects, Southend-on-Sea:—
 A. J. Harris .. £850 0 | Alp and Ventris, Shoe-
 buryness (accepted) £509 10

SOUTH STOKE, Oxon.—For the erection of schools, residence, &c., Woodcote, for the School Board. Mr. S. Johns, architect, St. Mary's-street, Wallingford. Quantities by Mr. S. G. Goss, 25, Bedford-row, London:—
 Winkworth .. £3,135 0 | T. Higgs .. £2,458 0
 Goodall .. 3,049 0 | J. Bichel .. 2,392 0
 Fitt .. 2,657 0 | Paddick .. 2,121 0
 Robinson .. 2,555 0 | J. Cox, Reading* .. 1,946 18
 Not signed .. 2,545 0 | *Accepted.

SOUTHAMPTON.—Accepted for the erection of shop and dwelling-house in Shirley-road, for Mr. S. H. Foy. Messrs. Juri and Sanders, architects, Southampton:—
 Golding and Ansell .. £1,350

STANMORE.—For erecting a house in Gordon-avenue, for Mr. F. Garrett. Mr. Horace Field, architect. Quantities by Mr. R. W. Griffiths:—
 J. S. Kimberley .. £3,154 | W. Bailey .. £2,930
 J. S. Kimberley .. 3,154 | Thos. Turner, Ltd.,
 Roland Bros. .. 3,150 | Watford .. 2,894
 Kirby and Sons .. 2,954

SURBITON (Surrey).—For rebuilding the "Rising Sun" hotel, for Messrs. Charrington and Co. Mr. Thos. Kimberley, architect, Surbiton. Quantities prepared by Messrs. Jas. Hood and Sons, 37, Wallbrook, E.C.:—
 W. M. Norton .. £3,617 | J. W. Brooking .. £2,957
 Atkins Bros. .. 3,130 | Edwards and Co. .. 2,887
 W. Nash .. 3,127 | J. J. Collings .. 2,827
 J. H. Jarvis .. 3,055

SWINDON.—For making additions and alterations to the Foresters' Arms public-house, Fleet-street, Swindon, for Messrs. T. and J. Arkell. Messrs. William Drew and Sons, architects, Swindon:—
 J. Hatherley .. £1,655 0 | A. J. Colborne .. £1,376 10
 Flewelling & Huck-son .. 1,473 0 | C. Williams .. 1,375 5

SWINDON.—For additions to the "True Heart Inn," Bishopstone, near Swindon, for Messrs. Godwin Bros., Belmont Brewery, Swindon. Messrs. W. Drew and Sons, architects, Swindon:—
 J. Williams .. £107 0 0 | Lawrence and Co. £335 12 6
 Flewelling & Huck-son .. 355 0 0 | W. A. Moulding, .. 334 7 6
 Lawrence Bros. .. 352 0 0 | Herring .. 325 0 0
 *Accepted.

SWINDON.—Accepted for forming road and putting in sewer and draining works to small-pox hospital for the Swindon and District Hospital Board. Messrs. William Drew and Sons, surveyors:—
 J. Williams, Swindon .. £362

SWINDON.—Accepted for forming new roads and putting in drains, &c., at Even Swindon, for Mr. James Morrison, J.P. Messrs. William Drew and Sons, surveyors, Swindon. Quantities by the surveyors:—
 J. Williams, Swindon .. £3,768

SWINDON.—Accepted for the erection of workmen's club and institute at Haydon Wick, near Swindon. Messrs. W. Drew and Son, architects, Swindon:—
 W. Chambers .. £700

TWICKENHAM.—For the erection of new dining-hall, recreation room, class-room, tailor's shop, dormitory, &c., at Fortescue House, Twickenham, for the National Refuges for Homeless and Destitute Children. Mr. R. G. Hammond, architect, 16, Essex-street, Strand, W.C. Quantities by Mr. W. H. Elsmore, surveyor, 9, Carteret-street, Westminster:—
 J. Norris and Sons .. £2,456 | J. W. Brooking .. £2,265
 T. Hiscock .. 2,432 | G. Wade .. 2,068
 A. J. Batchelor .. 2,289 | T. Nye, Ealing* .. 2,017
 *Accepted subject to arrangement.

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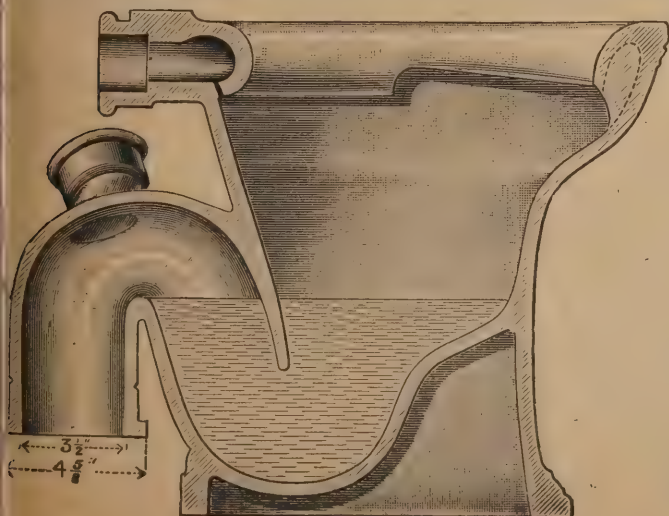
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Sealed Tenders to be forwarded by post to the Secretary of the Way and Works Committee, Midland Railway, Derby, not later than NINE a.m. on JUNE 16th, 1898.

The Directors do not bind themselves to accept the lowest or any Tender, nor to pay any expenses attending same.

Derby, June 7th, 1898. JAMES WILLIAMS, Secretary.

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Applications unaccompanied by references will not be noticed.

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A. MAJOR,

Director of Army Contracts.

War Office, Pall Mall, S.W., June, 1898.

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The Committee are prepared to receive TENDERS for the ERECTION of a CHURCH to accommodate 700 people in accordance with plans and specification prepared by Mr. REGINALD A. CROWLEY, A.R.I.B.A., of 22, High street, Croydon. Builders wishing to Tender may obtain a copy of the bills of quantities and form of Tender from the Architect, on payment of a deposit of Three Guineas, which will be returned on receipt of a bona-fide Tender. Applications for quantities must be sent in on or before WEDNESDAY, JUNE 12th.

No Tender will be recognised unless made on the prescribed form, properly filled up in every respect, sealed, endorsed "Tender for St. Stephen's Church, Portsea," and delivered at the Architect's Office by TWELVE

o'clock noon, on WEDNESDAY, JUNE 22nd next, and no expenses will be allowed or paid to any persons whether tendering or not. The Committee does not bind itself to accept the lowest or any Tender.

The plans, specification, and draft contract may be seen between JUNE 8th and 22nd, at the Architect's Office, and at the Buckland-road Post Office, Portsmouth.

REGINALD A. CROWLEY, Architect.

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The Governors of Palmer's Endowed School, Grays, invite TENDERS for the ERECTION and ALTERATION of SCHOOL BUILDINGS, at Grays.

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The Governors do not bind themselves to accept the lowest or any Tender.

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Tenders, sealed and endorsed, together with quantities in a separate sealed and endorsed packet, are to be delivered to me at my office, Orsett-road, Grays, not later than JUNE 20th, 1898.

Grays, Essex, May 27th, 1898. THO. A. CAPRON, Clerk to the Governors.

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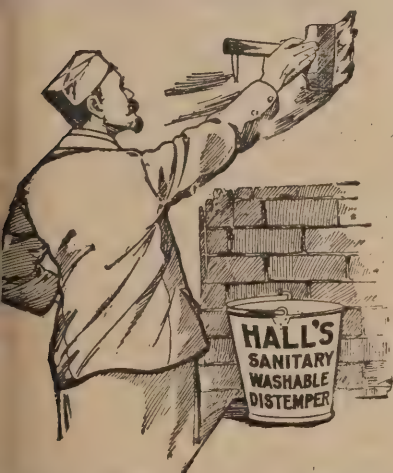
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TELEGRAMS: "ELSUM, THORNHAM."

Builders' Notes.

WHILE the Liverpool city authorities are engaged on the scheme of widening several important thoroughfares in the central portion of the city, at a cost of some hundreds of thousands of pounds, might it be suggested that it would be advisable for them to make all new main roads much wider than they are? There are several main roads in the outskirts of Liverpool in which a greater width could be retained with considerable advantage, and at a minimum cost, but which years hence, when they have to be widened, will necessitate the expending of a large sum of money, as property is being rapidly erected.

IN a report of the Parliamentary Committee of the St. Pancras Vestry a strong opinion is expressed that it would be a great public advantage if the metropolitan local authorities had power to regulate the opening-up of streets, as at present, under the powers possessed by them; gas, water, and other companies are free to make such openings without any system and as often as they choose and when they choose. Hence the frequency with which thoroughfares are disturbed, to the obstruction and inconvenience of the travelling public. It is suggested that the London County Council should, in one of their General Powers Bills, seek power to enable the local authorities to regulate the opening-up of streets otherwise under their control.

IN respect of an action which has been pending in the Glasgow Sheriff Court for some time in connection with the collapse of the building in New City Road, in November, 1896, Mr. Sheriff Strachan has issued the following interlocutor:—"Having heard parties' procurators, and considered the proof and productions, finds that on 30th November, 1896, a tenement, consisting of shops and dwelling houses, which the pursuer was in the course of erecting on a stance belonging to him in New City Road Glasgow, collapsed when it had been roofed and slated, finds that the said collapse was caused by the negligence and want of skill on the part of those by whom the tenement was erected after the defender had given up the contract (1) by placing three columns supporting the longitudinal beams on which the upper stories principally rested on a retaining wall of common rubble masonry entirely insufficient for the purpose; and (2) by failing to provide and put in the necessary supports shown on the plans sanctioned by the Dean of Guild Court; finds that the defender, while employed under the said contract, did nothing which in any way caused or contributed to the said collapse, and that he is in no way responsible therefor; therefore absolves him from the conclusions of the action and decerns; finds the defender entitled to expenses, including a debate fee of £5, and remits the account to the Auditor of Court to tax the same and report."

MR. S. STANLEY BROWN, in a paper on "Compensation for Accidents to Workmen in the United Kingdom," recently read before the International Congress of Actuaries, dealt with the consideration of the cost of the Workmen's Compensation Act. Stating his conclusions in the order of the accident and using the cost of each case and the number of each class as multipliers, he was enabled to determine the cost per cent. of wages for the different classes and the total, which showed in the result a pure loss ratio of 19s. 4d. per cent. of wages paid. To this, of course, had to be added the various expenses, including medical service, the observation of accident cases to prevent malingering, the cost of arbitration and litigation, control, management, and profit. The gross addition of all these items was 66 per cent., raising the rate from 19s. 4d. to nearly 32s. 3d. per cent. on the wages. If this average rate of 32s. 3d. per cent. to the traders coming within the operation of the Act—taking the number of persons employed at five millions and the

annual wages at £350,000—were calculated, it followed that there was an insurable interest in connection with this liability, represented by a premium of nearly £5,700,000 per annum. Using the numbers of accidents which were assumed to happen under this new law, and comparing its effects with the law of the beginning of this century, he said that there was no doubt that whereas one accident was compensated under the old systems forty accidents would be compensated under the new.

THE Trans-Siberian Railway, to which we referred a fortnight ago, is advancing very rapidly on the branch to Listvinitchna, which it is hoped to finish before August. The construction of the temporary wooden bridge over the river Irkout and the earthworks along the left bank of the Angara to Lake Baikal are already finished, but the rails have not yet been laid down. On Baikal itself active preparations are being made for placing the necessary landing stages and moles, which will be adapted for the direct transference of the trains on to an ice-breaking ferry barge. There is every reason to believe that between now and the end of next year the Listvinitchna branch will have been finished, together with the organisation of the necessary landing stages and ferry boats on Lake Baikal. Finally, 62 per cent. of the earthworks on the trans-Baikal section have been executed, and the necessary quantity of rails to complete the section as far as Stratsensk have been got in readiness, and the placing of them in position can be done in time for the opening of navigation on the Amur in the year 1900, and there will then be unbroken communication, partly by rail, partly by steamer, to as far as Vladivostok. At the present time, although the rails are only laid for half the line, the means of transport, calculated at three trains a day in each direction, are insufficient. That is proved better than anything else by the following figures: In 1896 there were conveyed over the West Siberian section 10½ million pounds of merchandise, and in 1897 21 million pounds, or the double, and in proportion as the line extends this amount will increase. In order to increase the number of trains in each direction to seven a day, 10 to 15 million roubles will have to be laid out, and over and above that a further 24 million roubles will be needed to increase the rolling stock by 300 engines and 10,000 trucks. Again, the railway in its present state is incapable of sending its trains at a more rapid rate than 25 kilometres an hour, whereas to meet the demands on the line, not only as a Russian national railway, but as a universal international railway, this speed must be increased to 40 or 50 kilometres an hour. To do this heavier rails will have to be substituted for those in use, stone bridges must be constructed in place of the existing ones in wood, and these with other alterations will entail a fresh outlay of 50 million roubles. There is no reason to believe that the Russian Government will recoil before these large amounts that are necessary to perfect the gigantic enterprise it has in hand.

A LOCAL GOVERNMENT BOARD enquiry has been held at Kessingland, relative to the application of the Rural District Council to borrow £1200 for the purposes of sewerage and sewage disposal for the parish.

DR. J. S. CAMERON, Medical Officer of Health for Leeds, in a recent lecture on sanitation, dwelt on the evils which existed in two-thirds of the "back-to-back" houses of Leeds from the leakage of pipes leading down the dividing wall to the sewer, and whence poisonous fumes were liable to escape into the house; and also to the insanitary "slums" of the city. Both these evils, added the lecturer, the Corporation had been and was turning its attention too, with a view of speedy remedy. Dr. Cameron showed one diagram illustrating an insanitary area which the Corporation had almost completely purchased, and where the present unhealthy arrangement of the buildings upon it was to give way to properly laid-out rows of houses.

Surveying and Sanitary Notes.

THE Corporation of Douglas has decided to increase its water supply by the construction of a reservoir at West Baldwin capable of containing 300 million gallons. The holding capacity will be six times that of the Clyde Reservoir.

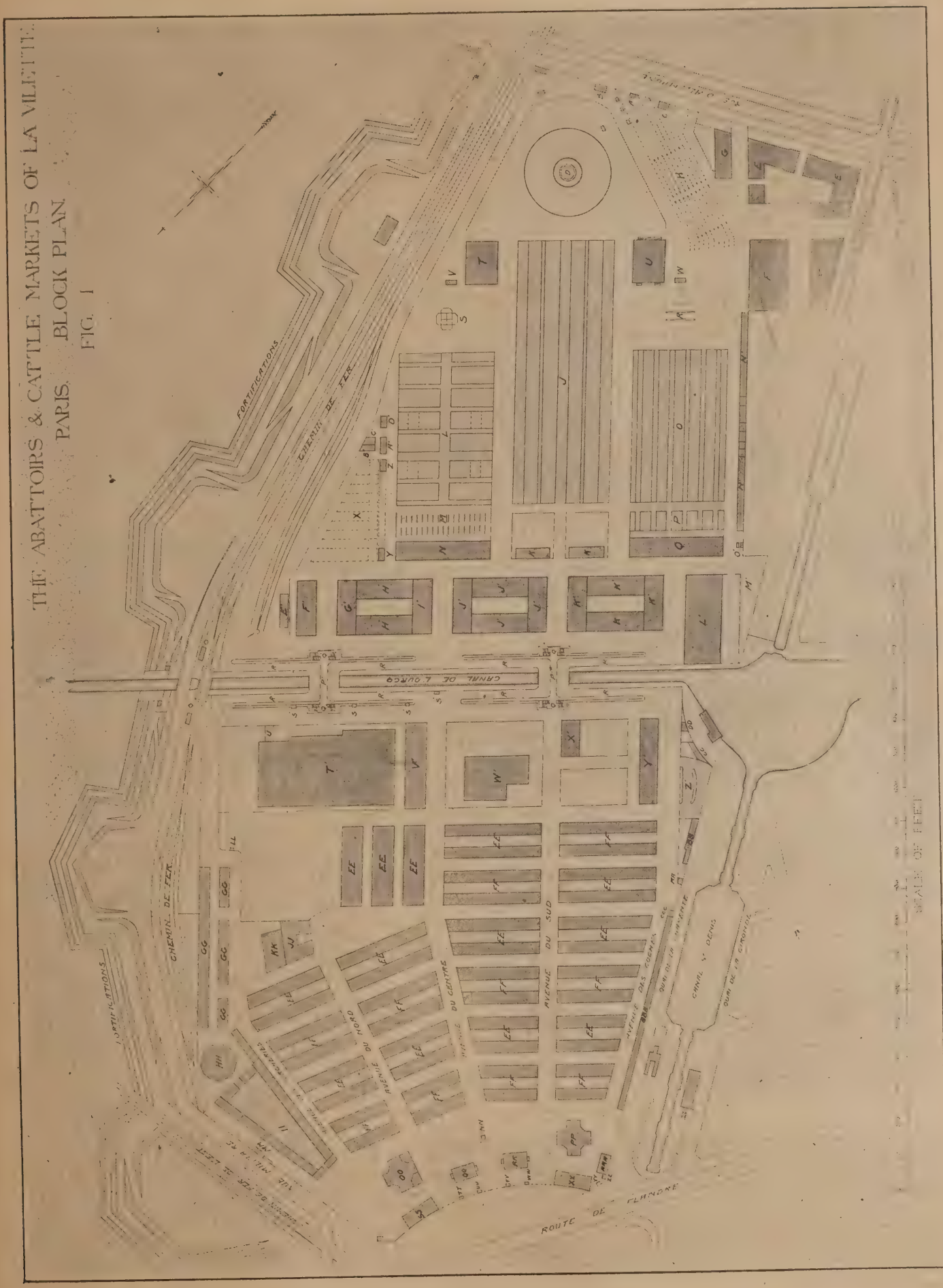
THE Hambledon District Council has been fined £45 by the Guildford bench for polluting tributaries of the Thames. The Middlesex rural authorities are not charged with wilfully polluting the Brent, but that tributary of our great river has become a terrible nuisance, and an almost certain focus of epidemic disease.

FOR many years the medical officer of health has drawn attention to the insanitary condition of the subsidiary drains in Plymouth, and the necessity of doing something in the matter being realised by the Sanitary Committee, they forwarded a request to the Works Committee to take action on the lines suggested by Dr. Williams. Mr. Paton was thereupon called upon to conduct a series of investigations, and as a result he recommended that the borough should be divided for the purpose into thirteen sections for successive treatment. In his report to the Works Committee, the surveyor described some of the subsidiary drains as being like a basket, in and out of which the sewage flowed, and he expressed the opinion that the necessities of the case would not be met to any appreciable or permanent extent by cleaning them out.

THE Local Government Board has intimated that they will assent to a loan of £40,000 being raised by the Exeter City Council for the purpose of carrying out the Cameron scheme for disposing of the sewage by the aid of the septic tank. Under this system the sewage is destroyed by bacteria. The enquiry held a short time since was attended by representatives of sanitary authorities from all parts of the kingdom, and the report of the Local Government Board has been awaited with the greatest interest. The promoters maintain that the effluent should run over land before entering the river, and they stipulate that there should be attached to the works an acre of land for each 2000 of the population. The complete scheme will not cost half the amount the Council were prepared to spend on the old system of precipitation and chemical treatment, and the annual expense will be infinitesimal. It will be noticed, however, that the Local Government Board have not abandoned their attachment to the principle of land being a *sine qua non* in the disposal of sewage.

SITUATED as Liverpool is, on the margin of the sea, with a fine river flowing through it, the great seaport ought to be exceptionally salubrious. But, instead of that being the case, its death-rate always comes out among the highest in England. Not without reason, therefore, is the local intelligence beginning to display curiosity as to the cause of such exceptional mortality. Various theories are propounded by newspaper correspondents, and perhaps the most reasonable is the view put forward by a few correspondents that overcrowding, bad drainage, and lack of open spaces combine to inflate the death-rate. It is asserted that there are tens of thousands jammed together in ill-ventilated rooms, where the air at night becomes unbreathable by ordinary lungs. Nor is the external atmosphere much purer in these congested localities; what between exhalations from the sewers and the paucity of public gardens, the lungs of Liverpool men who live in the slums never have a chance of performing their proper functions. In short, the picture presented by these candid critics is that of a great, wealthy, and prosperous English city ready swept and garnished for the reception of Asiatic cholera.

THE ABATTOIRS & CATTLE MARKETS OF LA VILLETTE.
PARIS. BLOCK PLAN.
FIG. 1



PARIS ABATTOIRS. FIG. 1.

PARIS ABATTOIRS.*

BY R. STEPHEN AYLING, A.R.I.B.A.

INTRODUCTION.

THE Report of the Royal Commission on Tuberculosis in cattle has recently been presented to the House of Commons, and the main recommendations of the Committee are in the direction of providing that cattle shall be killed in duly licensed slaughter-houses.

Municipalities in England, Ireland, and Wales are to be empowered to erect public abattoirs, and to suppress the existing slaughterhouses, after giving three years' notice. It is therefore probable that a large number of these buildings will be erected during the next few years, and it is to be hoped that they will be on the same broad and comprehensive scale as in most of the Continental cities.

At the present time we have in London only the Deptford Market for killing foreign cattle, which is very faulty in plan and arrangement. Although some of the largest provincial towns have public abattoirs, they are almost invariably built on sites too small to admit of the necessary accommodation. In some cases the lairs for animals to be killed are placed over the slaughterhouses, necessitating the use of lifts and slopes.

Innumerable small private slaughterhouses exist in London, many in the heart of densely populated districts, and apart from a sanitary aspect, they certainly present a demoralising influence on children of both sexes.

Although they are under the supervision of sanitary inspectors, it is impossible for these officials to control them as efficiently as when the buildings are grouped together on one site.

One cannot but feel the great advantage of centralising the killing of cattle under sanitary conditions and with a proper organised system of inspection, both before and after the animals are slain, so that the risk of meat reaching the consumer, which is unfit for food, is reduced to a minimum.

At present, trade opposition is against the erection of public abattoirs and the necessary closing of private slaughterhouses, but exactly the same difficulty was experienced in Paris and successfully overcome.

When the Manchester abattoir was about to be built, under the direction of Mr. A. Darbyshire, F.R.I.B.A., in 1873, the local butchers were strongly adverse to the scheme, and formed an association to protect their interests. Instead of obtaining compulsory powers to close the private slaughterhouses, the Committee wisely conferred with members of the trade, and after discussion the butchers themselves finally saw the advantage of a public abattoir with every convenience, and eventually were not only friendly disposed but gave every assistance to its development.

There can be no doubt whatever that the system adopted in Paris and other Continental cities is in every way superior to that in England, and one looks forward to the time when we shall not be behind our neighbours in effecting a much-needed, if radical, change.

Before describing the abattoirs of La Villette and La Rive Gauche, it may be interesting to give a short history of the laws which led eventually to the formation of these buildings.

For many years previous to the erection of the buildings at La Villette, it had been fully recognised that the system of each butcher killing his own cattle (often under insanitary conditions) was a bad one, and that the animals being driven through the city to the slaughterhouses constituted a grave source of danger. As early as the sixteenth century a law was passed to the effect that "The killing and skinning of all beasts should be outside the city and near the river." Notwithstanding the efforts of the civic authorities to carry this law into effect during the seventeenth and eighteenth centuries, the opposition offered by

five abattoirs, three on the left bank and two the butchers was so strong as to render the law practically futile. It was not until 1810 that a law was passed ordering the erection of on the right bank of the river. Later on others were added on the right bank, but they were all eventually closed and superseded by the abattoirs of La Villette.

In the present series of articles I propose to firstly deal with this group of buildings and afterwards with the yet unfinished buildings at La Rive Gauche.

They differ greatly in principle, and whilst at La Villette there are immense markets for the sale of live cattle, at La Rive Gauche this is not the case.

Very many serious defects found from practical experience at the former have been remedied in the plans adopted at the latter, and these will be treated in detail later on.

THE CATTLE MARKET AND ABATTOIRS OF LA VILLETTE.

These buildings were erected from the designs and under the superintendence of Mon. Janvier, architect, and were opened in 1867.

They are situated in the north-east part of Paris, within the fortifications and on the line of the Chemin de Fer de Ceinture, and are in connection with the Canals St. Denis and l'Ouercq. Fig. 1 shows a complete block plan of the buildings.

It is difficult to over estimate the great advantage of the site being bounded on the northern side by the railway, for by this means the abattoirs are brought into direct communication with all the other railways.

The live animals are thus conveyed immediately into the markets without the necessity of having to traverse the streets, which in addition to being dangerous, seriously deteriorates the flesh of the animal when killed.

The site occupied by the whole establishment is about 105 acres, and broadly speaking is two-thirds of a mile long by one-third of a mile wide.

Some idea may be obtained of the magnitude of these buildings from the fact that during one week in July last 72,809 heads of cattle were sold and killed, viz., 51,164 sheep, 7496 beasts, 9725 pigs, 2817 calves, 509 taureaux, and 1098 cows.

The site is divided in the centre by the canal de l'Ouercq, the southern half containing the large cattle markets and buildings for stabling some of the animals, and the northern half comprising the slaughterhouses and additional stables for cattle.

The principal entrances are in the Rue d'Allemagne, and it is through these gates that the few animals brought in carts or on foot are taken. At the end of the Rue d'Allemagne is a level crossing over the railway.

The general arrangement for dealing with the work is as follows:—Mondays and Thursdays are devoted to the selling of cattle, Tuesdays and Fridays to killing and dressing, and Wednesdays and Saturdays to carting, although each kind of work is carried on continually in some portion of the markets.

Adjoining the entrance gates in the Rue d'Allemagne are three small buildings, A. (Fig. 1) for the use of the Concierge B. (Fig. 1), for the Officers of the Octroi (or city toll) and C. (Fig. 1), is the station for the Sapeurs Pompiers (fire brigade).

Between these gates and the large central market is an immense courtyard, and in the centre the old Fountain D. (Fig. 1) which was brought here from the Place de Chateau d'Eau.

It consists of three tiers of basins with lions on pedestals spouting water in the lower basin which is about 80ft. in diameter.

At the south-west corner of the site are the "Bouveries de la Rue d'Allemagne" (E. Fig. 1), and also two other blocks of "Bouveries" (stables for beasts) (F. Fig. 1).

(To be continued.)

A JUBILEE fountain has just been opened at Hampton Wick.

BURRATOR RESERVOIR.

THE Burrator Reservoir, which is to provide Plymouth with an abundant and constant supply of water for the next fifty years, is approaching completion, and will, it is expected, be opened in September. The works, from the designs of Mr. Mansergh, M.I.C.E., and being carried out by Mr. E. Sandeman, M.I.C.E., the borough water engineer, are situated on the fringe of Dartmoor, and form an artificial lake, $1\frac{1}{2}$ miles long by half a mile wide, and holding 650 million gallons. At its deepest part the water is 77ft. deep. The masonry dam, which crosses the valley at Burrator, will be 363ft. long at the water level. At the lowest point of its base it is 77ft. thick, the average thickness at the river bed is 62 $\frac{1}{2}$ ft., and the width at the top is 21ft.

ABOVE THE DAM PROPER

will be a roadway carried over the centre of the structure by five arches, each with a 25ft. span. Between these arches the overflow water will pass out over the dam when the reservoir is full. At the sides the roadway, which will be 18ft. wide and 11ft. above the top of the dam, will be supported by a wall of concrete. In excavating for the foundations it was found necessary to go down 53ft. below the bed of the river, and the height of the massive structure from the lowest point excavated to the top of the roadway will be 129ft.; 29,000 cubic yards of material were taken out in the course of the excavation. All the fissures in the granite on both sides of the valley and below the river bed have been cut out by hand labour, no explosive being used in the excavations to avoid creating any further cracks and crevices in the rock. The process was necessarily slow and tedious, but the engineers and Water Committee know that the dam rests

ON A SOLID BED OF ROCK

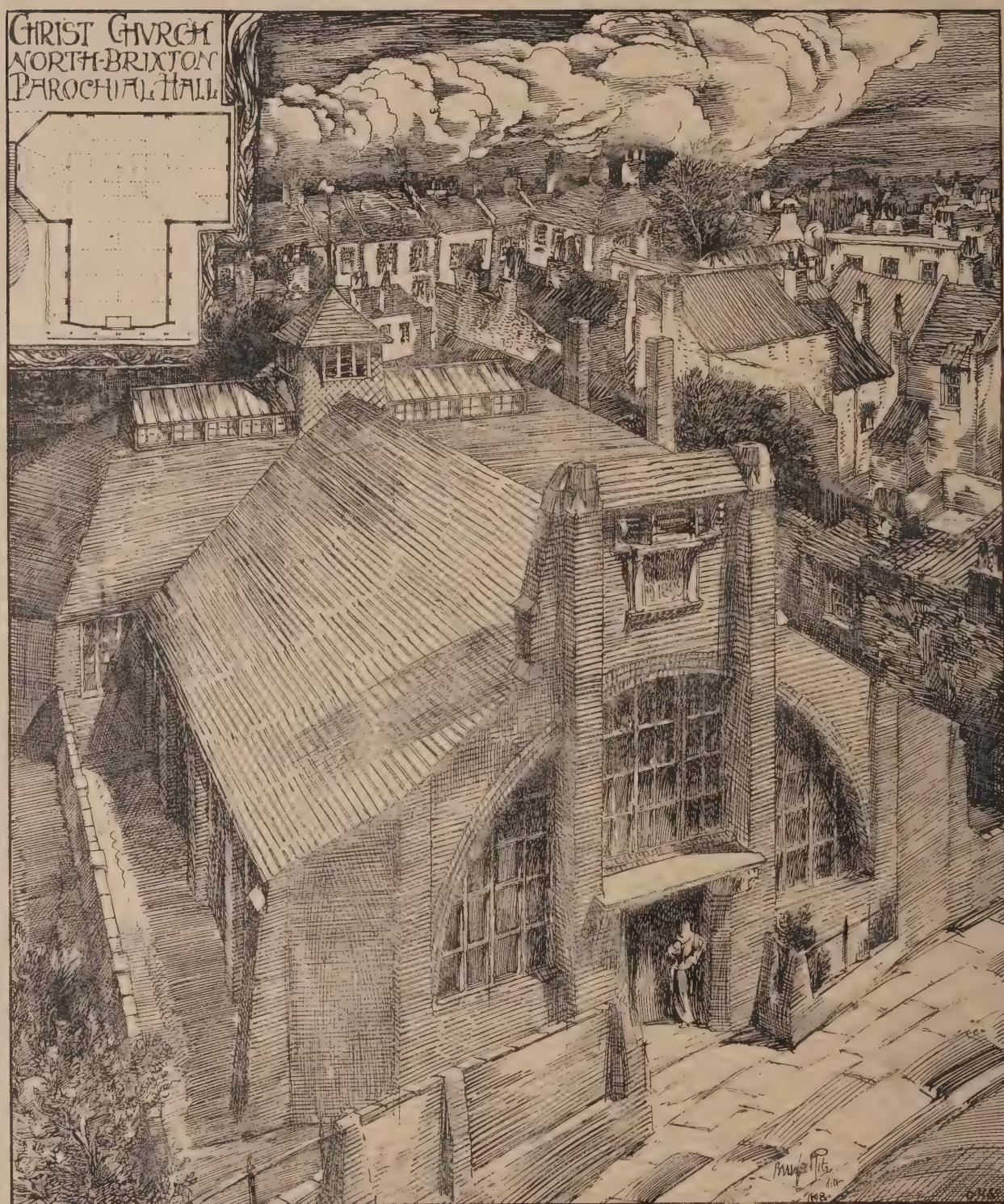
without a crevice or crack. The face and top of the dam have been constructed of uncoursed ashlar, consisting of square blocks of granite, and the core of the structure is composed of "cyclopean rubble," consisting of large masses of granite embedded in concrete. The construction of the core, says the Public Health Engineer, is peculiar. The granite blocks, some of them weighing several cwt., are placed as close together as possible without touching. Each stone before being put in position is carefully washed and scraped, then bedded in 4in. of cement, battened down by heavy malls, and then filled round with concrete. Another peculiar feature in the construction of the dam has been the jointing of the granite blocks forming the face. On the side of the dam which has to resist the water pressure the granite blocks have been rebated to a depth of 6in., leaving a space three-quarters of an inch wide to that depth between each of the blocks. These spaces have been filled in with neat cement, slightly damped, and driven in by an iron chisel. By this process an exceedingly

HARD AND WATERTIGHT JOINT

has been obtained, so as to make the face of the dam impervious, and prevent water percolating into the core of the structure. For a considerable portion of its length, especially in the centre, the dam itself is now complete, and workmen are busily engaged in placing the top stones in the other sections. The piers, which will support the arches of the roadway, are also finished, and the construction of the arches has been commenced. At the sides the masonry support for the roadway has been carried above the top of the dam proper to within 8ft. of the level of the intended road. In the early stages of the construction of the dam the River Meavy was diverted from its old bed and carried temporarily over the site by a lander. Later, as the work progressed, a tunnel, 10ft. in diameter, was made through the dam on a level with the old river bed. The river now flows through this tunnel, and it is intended shortly to lay two pipes through it, conveying water to the line of pipes now running from Burrator to

* The series, of which this article is the first, deals with the construction of the Cattle Markets and Abattoirs of La Villette and La Rive Gauche, Paris.

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PAROCHIAL HALL, CHRIST CHURCH, NORTH BRIXTON: ELEVATION. A. BERESFORD PITE, ARCHITECT.



CHANCEL STALLS, ST. BARTHOLOMEW'S CHURCH, BRIGHTON. H. WILSON, ARCHITECT.

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borough. When these pipes are in position, the time for impounding the river arrives, the tunnel will be permanently closed by an iron shield placed over the entrance, and the interior filled up with concrete. There is also steel pipe, 30in. in diameter, through the dam at a higher level. Its present purpose is to feed the leat, but it will form eventually a supplementary means of feeding the pipes supplying the town. A second tunnel, 6ft. high and 2ft. wide, runs longitudinally through the dam, through which, after the works are completed, the interior of the dam may be expected. Besides putting the finishing touches to the top of the dam, and the erection of the superstructure, with its five arches spanning the roadway above, there remains to be done, at the top of the dam, the fixing of machinery for working the valves, the

CONSTRUCTION OF SCREEN CHAMBERS.
Other subsidiary works on the lower side of the structure. Further up the valley near the village of Sheepstor a secondary dam, intended to prevent the overflow of the reservoir at a point where the land dips a little, has been constructed. Except for the facing of the side, which will be exposed to the water, this dam is now complete. Only a few feet above the level of the ground this dam would have been a minor feature of the works,

but for the excessive depth to which the engineers had to excavate for the foundations. In cutting the trench a large number of veins of rock of a porous character were found, which had to be removed entirely, with the result that the trench was excavated at its deepest point, 108ft. below the surface, before solid rock was reached. This unexpected difficulty gave the engineers much greater anxiety than anything else connected with the entire work. Having made the trench, a layer of concrete was laid at the bottom. On this

A WALL OF CONCRETE

5ft. thick was built up for a height of 80ft. From this point to the top the watertight core of the dam is formed of clay, tied to the concrete in a wedgeshape foundation. This embankment is 700ft. long, and 10ft. wide at the top. In substitution for the old Sheepstor Road, which will be submerged by the reservoir, a new road has been constructed from Millicroft Barn to the dam, and on the other side of the valley a similar road is in course of construction from the dam to the village of Sheepstor. Among the minor works remaining to be done is the erection of a small masonry dam at the head of the valley to intercept any stones or debris which might be brought down by the winter floods, and so prevent the silting up of the reservoir.

Trade and Craft.

NOVEL INTERIOR WALL CONSTRUCTION.

A new departure in interior wall construction is being made at the Mosley Hotel, Manchester. The basement of the building is undergoing sub-division into a number of rooms by means of partition walls of plaster of Paris. First of all the wall, which is only two inches and a half in thickness, is made in small square slabs, a portion of which is hollow. The slabs are placed in position and joined together by cement, the hollows being filled in with the same material. The invention, a German one, is known as the Bruckner Plate Wall, and the advantages claimed for it are its comparative lightness, strength, and durability, and that it is fire and sound-proof. The wall, too, is soon erected, the surface is smooth, and it can be painted or papered without drawback an hour or two after completion. The estimated cost is about six shillings per square yard. The plate wall is extensively used in Germany and France, and is said to have given complete satisfaction.

A new and handsome two-manual organ has been introduced in St. Columba Parish Church, Oban, at a cost of over £600.

COMPLETE LIST OF CONTRACTS OPEN.

NO. OF TENDERS.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
18	Manchester—Alterations, &c., to School	School Committee	Maxwell and Tuke, 41, Corporation-street, Manchester.
18	Cerne Abbas, Dorset—Erection of Bath-rooms, &c.	Guardians	J. Feacey, Architect, Dorchester.
18	Plymouth—Pumping Station	Corporation	J. Mansergh, 5, Victoria-street, Westminster, S.W.
18	Aberystwyth—Erection of House and Surgery	Dr. Bonsall	G. Jones and Son, 17, George-street, Aberystwyth.
18	Lancaster—Setting Back Office Front	Streets Committee	Borough Surveyor, Market-square, Lancaster.
18	Rugby—Infirmary Alterations, &c.	Guardians	T. W. Willard, Architect, Rugby.
20	Warrington, Surrey—Foundations of Asylum, &c.	Croydon Town Council	Borough Engineer, Town Hall, Croydon.
20	Knaresborough—School Buildings, &c.	Governors	Barrowcliffe & Allcock, Architects, Mill-st., Loughborough.
20	Grays—Erection, &c., of School Buildings	Governors of Palmer's Endowed School	C. M. Shiner, 2, Walbrook, E.C.
20	Brentwood, Essex—Repairing Bridges, &c.	Billericay Rural District Council	C. E. Lewis, Clerk, New-road, Brentwood.
20	Flint Hill, nr. Burnopfield, Durham—Tenement Houses	T. Robson	J. Moyle, Architect, Hobson, Burnopfield.
20	Goole—Erection of Wall	Rural District Council	— Tudor, C.E., Burlington-crescent, Goole.
20	Leamington—Erection of Engine-house	Corporation	Borough Engineer, Town Hall, Leamington.
20	Leeds—Alterations to Inn	Melbourne Brewery Company Limited	T. Winn, 92, Albion-street, Leeds.
20	Coventry—Stores, Stables, &c.	J. Morton and Son	T. W. Whitley, 7, Hay-lane, Coventry.
20	Leek, Staffs.—Congregational Manse	Trustees	W. Sugden and Son, Architect, Derby-street, Leek.
21	West Ham, S.E.—Boundary Wall, &c., at Pumping Station	London County Council	Engineers' Department, County Hall, Spring-gardens, S.W.
21	Exeter—Enlarging Post Office	Commissioners H. M. Works	12, Whitehall-place, S.W.
21	Croydon—Erection of Sheds, Boundary Wall, &c.	County Council	A. Broad, 22, George-street, Croydon.
21	Romford—New Wards at Workhouse	Union Guardians	E. G. Boden, North-street, Romford.
22	Stockport—Erection of Laundry, &c.	Union Guardians	Woodhouse and Willoughby, 100, King-street, Manchester.
22	Dublin—Alterations, &c., to Children's Home	Union Guardians	— Morris, 24, Cabra-place, Dublin.
22	Portsea—Erection of Church	Gas Committee	R. A. Crowley, 22, High-street, Croydon.
22	Rochester—Resetting Retorts, &c.	Corporation	T. B. Ball, Manager, Gasworks, Rochester.
22	Bury, Lancs.—Public Library and Art Gallery	C. Fynn	Borough Engineer, Bink-street, Bury.
23	New Brompton, Kent—Erection of Stores	Corporation	E. J. Hammond, 111, High-street, New Brompton.
23	Blackburn—Shops, Stables, &c.	Union Guardians	R. E. Fox, Town Hall, Blackburn.
23	St. Saviour's, Surrey—Isolation Block and Infirmary	School Board	F. Wheeler, 6, Staple-inn, W.C.
24	Wolverhampton—Buildings at Schools	Markets Committee	T. H. Fleeming, 102, Darlington-street, Wolverhampton.
25	Flookburgh—Erection of Cottages	Health Committee	J. Crow, Flookburgh.
25	Leeds—Dead Meat Market, &c.	Corporation	W. Hanstock, Architect, Branch-road, Batley.
25	Nelson, Lancs.—Refuse Destructor, &c.	London County Council	B. Ball, Borough Engineer, Town Hall, Nelson.
25	York—Electric Light Station	Bucklow Union Guardians	A. Creer, City Engineer, Guildhall, Yorks.
27	Horton, near Epsom—Superstructure of Asylum	Church Committee	G. T. Hine, 35, Parliament-street, S.W.
27	Knutsford—Erection of Chapel, &c.	Corporation Burial Board	R. J. M'Bath, Architect, Birnam House, Sale.
27	Lossiemouth, Scotland—Works	Corporation	J. H. Glennie, Solicitor, Lossiemouth.
27	London—Materials and Labour at Cemetery	Corporation	The Engineer, Guildhall, E.C.
27	Leicester—Hospital	Wandsworth and Clapham Union	Blackwell & Thomson, Halford-chbrs., Halford-st., Leicester.
28	Workington—Alterations, &c., to Infirmary	Metropolitan Asylums Board	F. W. Jackson, Secretary, Infirmary, Workington.
29	London, S.W.—Nurses' Home at Infirmary	Municipality	Lansdell and Harrison, 38, Bow-lane, E.C.
30	Newark—Alterations to Infirmary, &c.	Lodging House Committee, Ltd.	Sheppard and Harrison, Architects, Kirkgate, Newark.
30	Addingham, near Carlisle—Church Restoration	H. R. Cousins	G. Dale, Architect, Carlisle.
6	Tottenham, N.—First Section of Hospital	Roberts, Mart and Co.	A. and C. Harston, 15, Leadenhall-street, E.C.
11	Cupar Angus, N.B.—Farmhouse	Executors of C. H. James	Hope and Co., 119, Princes-street, Edinburgh.
24	Belem, Para, Brazil—Slaughter-house and Yard, &c.	L. Chorley	Commercial Department, Foreign Office, S.W.
ate.	Bradford—Erection of Warehouse	Rural District Council	C. H. Hargreaves, 19 & 20, New Corridor, Exchange, Bradford.
	Burford, Oxon.—Erection of Cottage Hospital	Secretary of State for War	T. H. Cheate, Hon. Sec., Burford, Oxon.
	Bury, Lancs.—Erection of Eight Houses	St. Mary's Church	T. Nuttall, 20, Market-street, Bury.
	Carlisle—Erection of Lodging House	Nostell Colliery Owners	H. Higginson, Architect, Carlisle.
	Harrogate—Erection of House and Stables	St. Andrew's Church	Bland and Brown, Architects, North Park-road, Harrogate.
	Holbeck, Leeds—Erection of Stable, &c.	Methodist Trustees	E. Hill, 20, Lifton-street, Beeston Hill, Leeds.
	Ipswich—Erection of Warehouse	Vicar and Committee	F. Brown, 1, Princes-street, Ipswich.
	Leeds—Erection of Mill Extensions	W. Bell	Ambler and Bowman, 9, Park-place, Leeds.
	Newsread, Notts.—Erection of Chapel, &c.	Misses Orr	J. E. Goodacre, Architect, Stockwell-gate, Mansfield.
	Pandy, Waes—Alterations, &c., to Farm Buildings	J. Markland	E. A. Johnson, Architect, Abergavenny.
	Silbergh, near Kendal—Rebuilding Hotel		J. Hutton, Architect, Kendal.
	Shirebrook—Erection of Chapel		J. E. Goodacre, 4, Stockwell-gate, Mansfield.
	Spilsby—Erection of Offices		Estate Offices, Spilsby.
	London, S.W.—Works and Repairs		War Office, London, S.W.
	Monmouth—Restoration of Church		The Churchwarden, Monmouth.
	New Crofton, Yorks.—Twenty-one Houses		Secretary, Nostell Colliery, New Crofton, Yorks.
	Ilkeshall, Suffolk—Restoration of Church		A. J. Lacey, 6, Upper King-street, Norwich.
	Kippax, Pontefract—Church		A. Hartley, Architect, Carlton-chambers, Castleford.
	Strata Florida, Cardiganshire—Erection of Church		T. Smith, Architect, Builth-Wells, Wales.
	Haltwhistle—Erection of Two Shops, &c.		H. Higginson, Architect, Carlisle.
	Hogunston, Ashbourne—Erection of Chapel, &c.		H. Harper, Architect, Market-place, Nottingham.
	Houghton, Yorks.—Erection of Six Houses and Shops		E. Heppenstall, Great Houghton.
	Leeds—Erection of House		P. Robinson, 72, Albion-street, Leeds.
	Londonderry—Erection of Dwelling-houses		T. Johnston, 11, East-wall, Londonderry.
	Macclesfield—Erection of Steam Laundry		A. C. Proctor, 23, King Edward-street, Macclesfield.
	Mansfield, Notts.—Erection of Twelve Houses		W. H. Higginbottom, King John's-chbrs., Nottingham.
	Purston, near Pontefract—Erection of Villa Residence		Garside and Keyworth, Architects, Pontefract.
	Roundhay, Leeds—Erection of Two Shops		J. E. Preston, 32, Northbook-street, Chapel-Allerton.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Highgate, N.—Salvation Army Buildings ... ..	.....	A. Gordon, 101, Queen Victoria-street, E.C.
"	Dudley, Northumberland—Church and Vestries...	.....	T. E. Davidson, 33, Granger-street West, Newcastle.
"	Lenton—Schools	Nottingham School Board...	A. N. Bromley, Architect, Queen-street, Nottingham.
ENGINEERING—			
June 18	Sunbury-on-Thames—Sewage Disposal Works	Urban District Council	J. Austie, 17, Victoria-street, Westminster.
" 18	Glasgow—Supply of Electrical Meters, &c.	Corporation	W. A. Chamen, 75, Waterloo-street, Glasgow.
" 18	Kenwyn, Cornwall—Sinking, &c., Well ... ..	.....	G. Gow, Tregothnan Office, Truro.
" 18	Wigan—Construction of Culvert, &c.	Corporation	Borough Engineer, Wigan.
" 20	Sheffield—Construction, &c., of Bridge	Corporation	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 20	Bournemouth—Electric Lighting	Corporation	F. W. Lacey, Borough Engineer, Bournemouth.
" 20	North Shields—Dynamos, &c.	Corporation	Lacey, Clivehugh, and Suler, 12, Delahay-st., Westminster.
" 20	Girsonfield—Construction of Reservoir, &c.	Committee	E. Brown, 85, Clayton-street, Newcastle-on-Tyne.
" 20	Iburdale—Construction of Bridge	Rural District Council	Guardians' Office, Church-street, Whitby.
" 20	Tipton—Heating	Urban District Council	W. H. Jukes, Owen-street, Tipton.
" 21	Erith, Kent—Supply, &c., of Electric Cables, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 21	London, S.W.—Supply of Engines, Dynamos, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 21	Margam—Construction of Reservoir	Urban District Council	J. Taylor and Sons, 27, Great George-street, Westminster.
" 22	Scunthorpe, Lincs.—Well and Borehole	Urban District Council	A. M. Cobban, Surveyor, Howe-street, Scunthorpe.
" 28	East London, Cape Colony—Electric Works and Plant... ..	Town Council...	Dyer and Dyer, 17, Aldermbury, London, E.C.
" 28	Beckton, N.Woolwich—Construction, &c., of Engines, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 28	Erith, Kent—Converting Engines	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 28	Southampton—Construction of Vessel	Harbour Board	J. G. W. Aldridge, 9, Victoria-street, Westminster.
" 28	London, N.E.—Electric Light	Bethnal Green Guardians	Giles, Gough, and Trollope, 28, Craven-street, W.C.
" 30	Kent—Re-drainage of Asylum, Water Reservoirs, &c.	County Asylums Committee	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 30	Penshurst—Six Cottages	Rural District Council	J. Escombe, Penshurst, Tonbridge.
July 1	Dublin—Four Engines	Great Northern Railway Co.	T. Morrison, Amiens-street Terminus, Dublin.
" 2	Eton—Sewers, Tanks, Pumping Station, &c.	Urban District Council	Bailey, Denton, Son, & Lawford, Palace-chbrs., Westminster.
" 4	Grangemouth, Scotland—Dock Extension	Caledonian Railway Co.	Sir J. W. Barry, 21, Delahay-street, Westminster.
" 4	Radomir, Bulgaria—Construction of Railway	Ministry of Public Works...	Commercial Department, Foreign Office.
" 7	Leicester—Supply and Fixing of Grids	Gas and Electric Lighting Committee ..	A. Colson, Engineer, Millstone-lane, Leicester.
No date.	Cockermouth—Rebuilding Bridge	Rural District Council	J. B. Wilson, Cockermouth.
"	Nunthorpe—Sinking Well ... ..	.....	J. Coates, Nunthorpe, R.S.O.
"	Lochfoot—Reservoir	Dumfries, &c., Water Commission	A. B. Crombie, Dumfries.
IRON AND STEEL—			
June 20	Southampton—Erection of Lamp Columns, &c.	Corporation	G. B. Nalder, Municipal Offices, Southampton.
" 21	London, W.—Various Stores	Great Western Railway Co.	Secretary, Paddington Station.
" 21	Leicester—Construction, &c., Iron Fencing	Estate and Burial Grounds Committee...	E. G. Mawby, Borough Surveyor, Town Hall, Leicester.
" 22	London, N.E.—Boundary Walls and Gates	Hackney Union	F. E. Coles, Clerk's Office, Homerton, N.E.
" 23	Manchester—Various Stores	Gas Committee	C. Nickson, Gas Department, Town Hall, Manchester.
Aug. 23	Coolgardie, Australia—Steel Pipes	Government of Western Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
ROADS—			
June 18	King's Lynn—Road Works ... ..	.....	F. R. Fayers, 8, St. Nicholas-st., Market-place, King's Lynn.
" 18	Wadsley—Asphalting	Asylum Committee	Clerk of Works, Wadsley Asylum.
" 18	Newcastle-on-Tyne—Five Street Watering Vans	Corporation	Engineer, Town Hall, Newcastle-on-Tyne.
" 20	Bury—Street Works	Streets Committee	Borough Engineer, Bank-street, Bury.
" 20	Spennymoor—Kerbing, &c.	Urban District Council	G. W. Rogers, Silver-street, Spennymoor.
" 20	Tong—Sewer Works, &c.	Union District Council	J. Smith, Tong-street, Dudley Hill.
" 21	Croydon—Road Repair	Urban District Council	Borough Road Surveyor, Town Hall, Croydon.
" 21	Croydon—Improvement Works	Town Council...	Borough Road Surveyor, Town Hall, Croydon.
" 21	Lewisham—Kerbing, Channelling, &c.	Board of Works	Surveyor, Board of Works, Catford, S.E.
" 22	Aylesbury—Materials	Urban District Council	J. H. Bradford, 2, Rickford-hill, Aylesbury.
" 23	Loughborough, Leics.—Supply of Granite	Corporation	Borough Surveyor, Town Hall, Loughborough.
" 23	East Grinstead—Materials	Urban District Council	R. Wilds, London-road, East Grinstead.
" 23	Lewes—Materials... ..	Town Council...	Borough Surveyor, Town Hall, Lewes.
" 23	London—Making-up Road	Metropolitan Asylums Board	Norfolk House, Norfolk-street, W.C.
" 24	South Stoneham—Supply of Gravel... ..	Rural District Council	J. Cudlip, District Surveyor, Old Netley.
" 25	Brierfield, Lancs.—Road Material	Urban District Council	J. T. Lanfless, Engineer, Station-buildings, Nelson, Lancs.
" 26	Aberdeen—Road Work	Town Council...	W. Dyack, Borough Surveyor, Town House, Aberdeen.
No date.	Lancs.—Streets ... ..	.....	McCall and Robinson, 7, Tacketts-street, Blackburn.
SANITARY—			
June 18	Stonehaven—Sewer	Borough	Mr. Murdock, Borough Surveyor, Stonehaven.
" 18	Plymouth—Pumping Station and Sewers	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 20	Totnes—Sewage Works	Corporation	W. F. Tolit, Borough Surveyor, Gate House, Totnes.
" 20	Walsall—Scavenging	Rural District Council	A. H. Lewis, 29, Leicester-street, Walsall.
" 20	Paddington, W.—Sewers, &c.	Vestry	Surveyor, Vestry Hall, Harrow-road, W.
" 20	London, W.—Sewer	Vestry	Surveyor, Vestry Hall, Paddington.
" 21	Hale, Cheshire—Construction of Sewers, &c.	Bucklow Rural District Council...	J. M'D. McKenzie, 7, Market-street, A trincham.
" 22	London, W.C.—Barging away Slop, &c.	Strand Board of Works	Offices, 5, Tavistock-street, Covent-garden, W.C.
" 22	Stowmarket—Laying Pipe Sewers	Urban District Council	Pollard and Tingle, 31, Old Queen-street, Westminster.
" 24	Aylesbury—Sewer Extension	Urban District Council	J. H. Bradford, 2, Rickford-hill, Aylesbury.
" 25	Ashby-de-la-Zouch—Sewers, Manholes, &c.	Urban District Council	J. B. Everard, Millstone-lane, Leicester.
" 29	Davertry—Re-drainage	Guardians	J. B. Williams, Moot Hall, Daventry.
" 30	Chartham Downs, near Canterbury—Re-drainage, &c.	Kent County Asylums Committee	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
July 20	Wolverhampton—Construction of Sewers...	Sewerage Committee	J. W. Bradley, Town Hall, Wolverhampton.
FURNITURE—			
June 18	Tiverton-on-Avon—Furniture	School Board... ..	Silcock and Bear, Octagon-chambers, Bath.
" 23	London, N.W.—Furniture	Metropolitan Asylums Board	The Board, Norfolk House, Norfolk-street, Strand, W.C.
" 27	Kautsford—Furnishing Board-room	Guardians, Bucklow Union	J. M. Beath, Birnam House, Sale.
PAINTING AND PLUMBING—			
July 4	Kippax—Painting, &c.	School Board... ..	C. A. Phillips, Clerk, Castleford.
No date.	Nottingham—Painting, &c.	School Board... ..	Offices of School Board, Nottingham.
TIMBER—			
June 20	Bermondsey—Wood Paving Blocks	Vestry	F. Sumner, Town Hall, Spa-road, S.E.
" 22	Gravesend—Firewood	Guardians	W. J. King, Town Hall, Gravesend.
" 24	Walthamstow—Oak Park Fencing	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 24	East Ham—Offices, Fire Station, and Public Baths	£105, £52 10s.	Urban District Council.
" 30	Rotherham—Plans for School Department	£15, £10	School Board.
" 30	West Bangor, N.B.—Asylum Buildings ... ..	.....	Edinburgh District Lunacy Board.
July 1	Linslade—Plans and Estimates for Sewerage Disposal and Water Supply Schemes. ... ..	.....	Urban District Council.
" 1	Widnes—Laying-out Park, &c.	£36 15s., £10 10s., £5 5s.	Jubilee Commemoration Committee.
" 1	San Francisco Bay—Designs for University Buildings...	£10,000 (divided in two competitions)	Trustees of the Phebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage	£100, £50, £25	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25	Town Council.
July 16	Beverley—Extension of Offices	East Riding County Council	J. Bickersteth, County Hall, Beverley.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
" 16	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
No date.	Glasgow—Sketch Models for Eight Stone Figures	Corporation	Corporation.

PROPERTY & LAND SALES.

A COMMANDING BUILDING suitable for club, hotel, restaurant, theatre, music-hall, stores, flats, religious or philanthropic institution, or for commercial firms requiring large space.

OXFORD MANSION, Oxford-circus, London, W. To be SOLD by TENDER, on JUNE 30th next, this well-known BUILDING, of striking elevation and fire-proof construction, standing on nearly ½ acre, with four frontages of 100ft., each within a few yards of the new Oxford-circus station of the Central London Railway, six stories, floor space about 54,700 superficial feet, 133 rooms and a large central hall and basement. Artesian well. Portland lease 56 years.

For particulars and forms of Tender, apply to
LEGGATT RUBINSTEIN and CO., Solicitors,
5, Raymond-buildings,
Gray's Inn, London, W.C.

WEMBLEY, MIDDLESEX.

A number of IMPORTANT FREEHOLD BUILDING SITES, comprising portions of the highly favoured Building Estate known as "HARROWDENE," about three minutes' walk from Sudbury Station, on the L. and N.W.R., and about one mile from Wembley Park Station, on the Metropolitan and District Railway. The plots all occupy capital positions on the rising ground to the west of the first-mentioned railway, and possess **GOOD FRONTAGES TO THE HARROW-ROAD**, the Harrowdene-road, and Crawford-avenue, with depths varying from 200 to 300ft. The Estate is laid out with 50ft. roads, planted with trees, and provided with means of lighting; house connections are laid; gas and water mains are put in throughout; and the carriage-ways have been taken over by the Local Authorities. The best of the sites are eminently suitable for the Erection of Residences ranging from £60 to £100 per annum, whilst others are intended for Villas with rentals of from £35 to £40 per annum.

MESSRS. WALTON and LEE will OFFER the above for SALE by AUCTION, at the Public Offices, Wembley, on THURSDAY, JUNE 23rd, 1898, at SEVEN o'clock p.m. precisely.

Particulars may be obtained of Messrs. FLADGATE and Co., Solicitors, Craig's Court, Charing Cross, S.W.; or of the AUCTIONEERS, at their Offices, 10, Mount-street, London, W.

TO BUILDERS.—FREEHOLD BUILDING

LAND.—West Green Lodge, West Green-road, Tottenham, almost immediately opposite the West Green Station. To LET, by TENDER, on JUNE 24th, 1898, a very eligible piece of LAND, with frontages to three made roads, ripe for building, and suitable for the erection of eleven shops and nineteen small private residences. For forms of Tender apply to Mr. C. E. JACKSON, Architect, and Messrs. GEO. and WM. WEBB, Solicitors, 39, New Broad-street, E.C.

TO BUILDERS AND OTHERS.—Messrs.

FULLER, HORSEY, SONS, & CASSELL, are instructed by the proprietor, who is retiring from business, to SELL by AUCTION in lots, on the PREMISES, 38, Boundary-road, St. John's Wood, on WEDNESDAY, JULY 6th, at TWELVE o'clock precisely, **BUILDER'S PLANT and MACHINERY**, including a combined circular saw bench and irregular moulding machine, a 42in. drag saw bench, mortising and boring machine, vertical engine and boiler, shafting, 200 scaffold poles, 20 dozen cords, 400 scaffold boards, putlogs, steps, ladders, benches, cramps, &c.; stock of well-seasoned timber, comprising about 1000ft. super mahogany, 1500ft. super wainscot, cut stuff, quartering, mouldings, 50 squares flooring and matching; also 30cwt. white lead, oils, turps, varnishes, and painters' materials, blocks, jacks, plumbers' brass work, solder, sheet lead and pipe, ironmongery, &c.; 2 spring carts, hand truck, chaff-cutter, and other effects.—May be viewed by order, and catalogues had on the premises, and of the AUCTIONEERS, No. 11, Billiter-square, E.C.

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Ripe for development by a formation of roads, and plotting, either for re-sale, or building upon at once attractively designed detached houses, and pairs of moderate size, &c. It is situated within about half a mile of the High-street, and a trifle over a mile from the Station at Sutton, Surrey, possesses a very long frontage to excellent hard road. The spot is very rural, and high and dry. Area about 80 acres. Details to principals only.—ALEX H. TURNER and Co., 199, Piccadilly.

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MESSRS. TUCKETT and SON are instructed by the Trustees of the late James Spencer Bell, Esq., to SELL by AUCTION, at the WHITE LION, High-street, Putney, on THURSDAY Evening, JUNE 16th, at SIX o'clock, the FOURTH and FINAL PORTION of the WOODLANDS ESTATE, in numerous lots, land tax redeemed and tithe free, most conveniently and advantageously situated, and being almost the only land remaining undeveloped between these populous suburbs, with frontages to Fawe Park, Skelgil, Brandehow, and Putney Bridge Roads, the latter eminently adapted for shops, being immediately opposite the intended Public Park and Recreation Ground.

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TOOTING.—In the main road from Streatham to Mitcham.—Ripe Building Estate.—Close to Streatham and Tooting Junction Stations and the Recreation Ground.

WEATHERALL and GREEN will SELL by AUCTION, at the Mart, City, on MONDAY, JUNE 27th, at TWO, in one lot, 53 acres of valuable FREEHOLD BUILDING LAND, ripe for immediate profitable development, situate opposite Gorrings Park, and having a good frontage to Streatham-lane, possessing great capabilities for building. In addition, a valuable bed of gravel underlies most of the land. Let on lease determinable at Michaelmas, 1899, at £160 per annum.—Messrs. GROVER, HUMPHREYS and SON, Solicitors, Temple. Particulars of the AUCTIONEERS, 22, Chancery-lane.

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WEATHERALL and GREEN will SELL by AUCTION, at the MART, City, on MONDAY, JUNE 27th, at TWO, in Lots, the following FREEHOLD detached RESIDENCES, of attractive elevation, in red brick, each having a large area of well-matured garden ground:—

The Chestnuts, lot at per annum ... £55
The Firs, lot at per annum ... £75
Heatherhurst, lot at per annum ... £80

Also a Freehold Ground-rent of £25 per annum, secured upon the adjoining residence, known as Inglemere. The valuable Freehold Building Land with considerable frontages to the main road, and containing about five acres, admirably adapted for speedy and profitable development.—Messrs. GROVER, HUMPHREYS, and SON, Solicitors, Temple. Particulars and plans of the AUCTIONEERS, No. 22, Chancery-lane.

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The person appointed will be required to supervise the erection of new buildings, and to see that the bye-laws in force within the Borough with respect to new streets and buildings are complied with, and it is essential that he should be practically acquainted with building construction, and have a thorough knowledge of the model Bye-laws of the Local Government Board, under the Public Health Act, 1895.

Applications to be made in writing, accompanied by copies of not more than three recent testimonials (which will not be returned), stating age, qualifications, experience, and where at present engaged, to be delivered at my office before ELEVEN o'clock a.m. on THURSDAY, JUNE 23rd inst.

Canvassing members of the Town Council will be a disqualification.

By order,

WILLIAM H. TURNER,
Town Clerk.

Southend-on-Sea,

June 8th, 1898.

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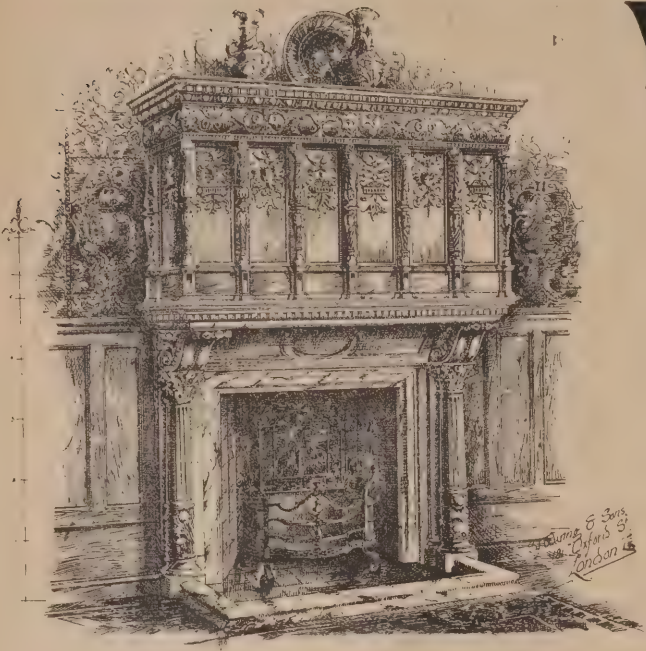
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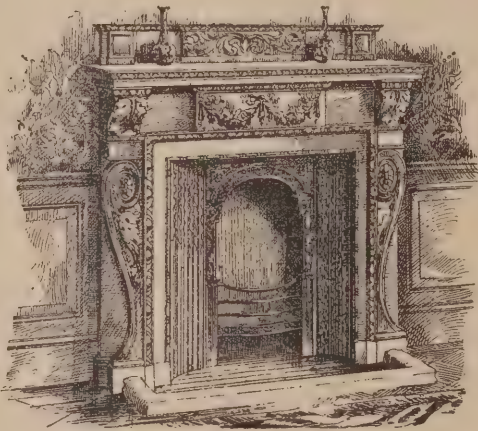
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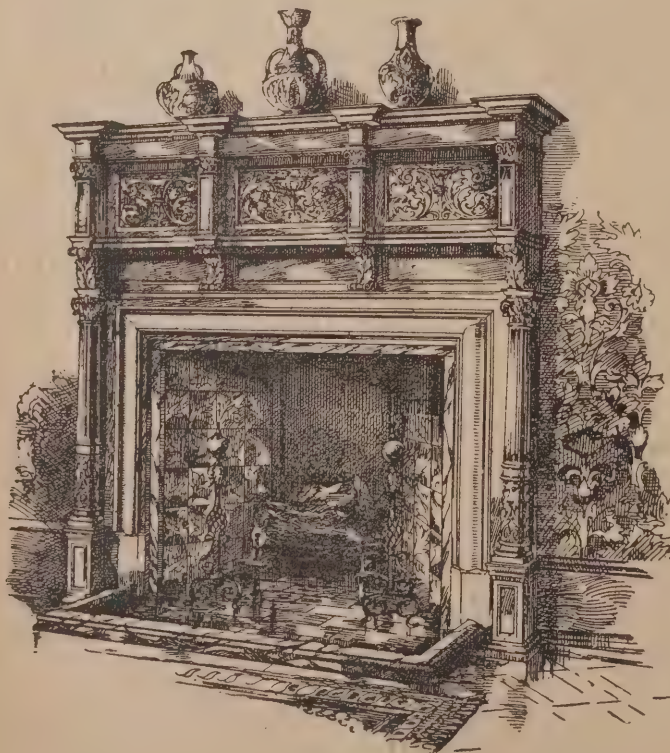
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WITH SURVEYING AND SANITARY SUPPLEMENTS

IN MEMORIAM.

SIR E. BURNE-JONES.

ONE by one the stars in that little constellation of artists whose works since the early sixties have done so much for the Art of our day have sunk beneath our horizon, and their orbits sweep a wider sky. It seems but the other day that Morris died, and we followed sadly the garlanded wain which wound its way through Oxford lanes like a sunny memory of a happier time. It was not a funeral, but a parting feast made to the hero of many fights, the skald of many lays; we celebrated not his loss, but his coming to his kingdom. Now his friend — it seems impossible to write of either alone — the twin star of that brilliant group — has been swept from our sight, too suddenly for us, yet not without a strange appropriateness when we think of their closeness to each other. There is something very beautiful in the relation of the two artists. Morris, with his sturdy northern virility, was a tower of strength to the dreamer of strange and beautiful visions; the inequalities of each seemed to interlock, and the two made one. Either had done more than enough to win a lasting place in the temple of fame, but united they became a force which transformed the whole artistic aspect of their time. They erected a new ideal, created a new canon of criticism, formed a new style. And the paintings of Burne-Jones, the poems, the lectures, the designs of William Morris, turned again to a study of Nature the minds not only of artists, but of a very large section of the public. It is impossible to look at any exhibition of contemporary Art, either at home or abroad,

without realising the immense influence exercised by the ideals of Burne-Jones. Critics may cry as they will at what they call the lack of draughtsmanship, of the power to paint; the common Philistine may shrug his shoulders at what for his obtuseness is impenetrable mysticism; but those apart, most will agree that the lofty ideals, the deep sense of mystery, of beautiful colour, the fine feeling for line, for spacing, for mass, have never been approached by any other artist of the day. It is useless to dwell here on his personal history, or upon that of the movement with which he was associated, these have been long well known, and every paper is full of them. It were better to dwell on his influence. To come upon any of his works for the first time, wherever they may have been encountered, has been for most an unforgettable

public. While in so many other painters one's attention is perforce directed to the paint, to the canvas, to the ability of the artist; before Burne-Jones one is compelled to see with his eyes; he fascinates, mesmerises, and only when the conception has sunk into one and is accepted, only then is the attention turned to the manner in which the miracle has been achieved. We accepted his ideas not as things we knew, had seen or handled, but as things which must exist could we but see them for ourselves. One thinks of him as a modern Merlin, his wand turned paintbrush, casting the glamour of his personality near and far. For, as said before, it is not in England alone that we find painters working under his spell, but abroad, Puvis de Chavannes, Fernand Knopf, to name no lesser lights, show indisputable traces of his power. M. de

Chavannes, with whom I had the honour of discussing Burne-Jones, expressed for him the liveliest admiration, and, coupling his name with that of Watts, called the two England's greatest painters. The secret of this overmastering influence is, I think, to be found in the fact that Burne-Jones, having found himself very early in his career, never allowed anything to come between himself and the attempt to give expression to his personality. He sought by every means in his power quiet, retirement, contemplation, and, with great deliberateness, with indomitable courage, designed and drew and painted while the storm of unthinking controversy raged around his work. Critics exhausted their powers of mockery, unattached writers their derision, writers of comic operas made songs and poured out streams of alleged wit concerning the finest of his works. The London Charivari, as it ever does when anything noble crosses its path, led the host of comic papers to attack his paint-

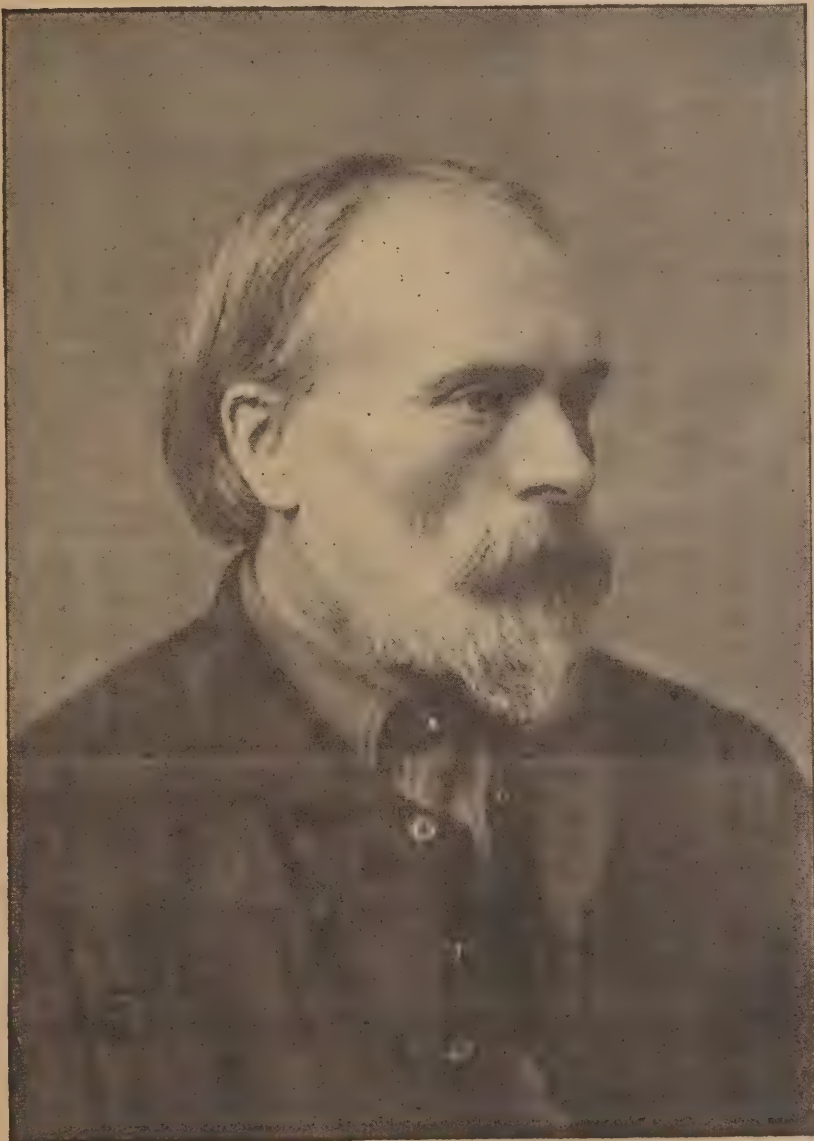


Photo by Elliott and Fry.

THE LATE SIR EDWARD BURNE-JONES, BART.

moment. It was not the painting or the drawing that most drew us; it was the sense of completeness, the sense of remoteness, of invincible calm, inviolable peace, disengaged from his work. In the crowd of paintings near, his were like a clear window into another world, the vision struck home to one unhindered by any of those tricks of execution, those *tours-de-force*, which, in other painters, rouse the facile admiration of an unconsidering

ings and to rail at his ideals. But he kept to his work, changed nothing, only plunged the more deeply into his dream-world, and there, curtained round with visions, forgot about the fray. From the little sanctum which he created issued countless designs for glass, cartoons for mosaic, for tapestry, for embroidery. Innumerable studies of heads, of groups, of animals, flowers, Architecture. At stated intervals appeared in

succession "The Merciful Knight," "Chant d'Amour," "Laus Veneris," "Venus Mirror," "The Wine of Circe," "Love Among the Ruins," "The Wheel of Fortune," "King Cophetua," "The Days of Creation," "The Beguiling of Merlin," "The Golden Stair," "The Perseus" series, "The Nativity," "The Annunciation," and many single figure panels of great beauty. His work for Morris alone would have taken all the activity of many a lesser life. Yet in none of his work is there any trace of hurry; every line, every brush stroke looks in its place as the fibres on a flower stem or the colours on a petal. One thinks he made few mistakes, there was the immediate sense of what was to be done and the hand by long training did its work unhesitatingly. But for this delightful and complete subservience of hand to brain we could never have had the wonderful series of plant studies, the exquisite drawing of flowers, nor the simple direct draughtsmanship of his cartoons. Though the subjects are mysterious, something vague at times, there is nothing vague or tentative in the manner of their presentation. On the cartoons one sees the unhesitating nervous line thickening here, thinning there, flowing like a liquid sheath round the forms he desired to suggest. The crayon seemed to have had a life of its own, and ever to run before the master's touch. Every student should see these things, and himself observe that wonderful continence of effort, that directness of touch, that immediate contact with Nature, the source of all inspiration. All through his life he kept up his study of Nature; yet one feels he seldom worked direct from his model. What it lost in actuality his work has gained by assuming that far-off cloistered solemnity of aspect, because distilled through the medium of his own personality. Every unessential fact, every obsessional detail was filtered away, leaving behind only the pure beauty of the conception. He was a worshipper of beauty in itself and for itself, unfaltering in his fidelity. Yet, because this is so, we do feel at times that in his patient research of beauty, in his pursuit of it, he lost strength; while seeking grace he lost at times that ruggedness which should serve as a foil: and in some of his paintings the over-elaboration deadens for one the impression the painter desired to produce. It is as if the bow, overdrawn, had sent the shaft astray. But what is, perhaps, most remarkable of all in his achievement is that he turned the attention of a whole host of painters from the frowsy domesticity in which they and the public all delighted to a world of beauty; to an inexhaustible mine of subjects, undreamed of by the best of them: he showed us the splendours of legendary history. This has given the Art of the nineteenth century a new impulse. Imagine what we should be now but for the Burne-Jones, Rossetti, Morris, and their school. The masterpieces of Watts would have stood like peaks on the dull plain of photographic studies of domestic interiors, fat models, painted in studio light, bathing themselves in open-air surroundings. But under the influence of Burne-Jones's work spurred on at first by unwilling admiration, afterwards by wild enthusiasm, the younger artists began to imitate him, and soon all the bourgeois ideals of the Early Victorian period—"The Toilet," "The Ball," "The New Dress," "Forsaken," "The Stile," "Lovers' Meetings," "The Trysting Place," the worn-out platitudes of painting, the bathos, the sticky sentiment, gave way to a nobler Art, a more dignified ideal. This was alone an achievement great enough to have made him famous, yet he did more. By the effect of his wonderful designs for stained glass, by his altar paintings and decoration for churches, he has revolutionised even the clerical ideal, and roused in the minds of many an unextinguishable hatred of the

mechanical spiritless productions so-called "Ecclesiastical Art." It is impossible at present to decide what his place shall be, nor can we estimate the value of his work, nor measure the whole extent of his influence. We can only get an approximate idea by referring to the opinions of Continental critics, whose view is more detached, more independent, than that of any Englishman could be. For the Continent there are only very few painters in England, but of those Burne-Jones is always selected as the first. Among the French particularly his work is valued, and has found many imitators, for they realise perhaps more keenly than us the decorative aspect of his work, and as a decorator he stands without a rival. His influence was paramount also in another sphere. In the inception of societies for the bettering of arts and handiwork he lent invaluable aid, and always gave ready help to such as the Arts and Crafts Society and the Art Workers' Guild. He was also, as might well be expected, an ardent admirer of ancient Architecture, and used his whole influence in what seems the hopeless attempt to stem the tide of destruction which is, despite even his efforts, sweeping away the most valuable relics of ancient Art. As a member of the Society for the Protection of Ancient Buildings, the memory of Burne-Jones will be cherished as that of one whose unflinching sympathy and powerful influence were always ready in the time of need. No one who saw it will readily forget his generous indignation at the unpardonable destruction of the front of Peterborough Cathedral. We have lost a fine artist and gained an abiding influence; we lose a great man, and find a great memory; we have lost a great designer and gained a living school. Whether we regard him as artist or man, Burne-Jones was one of whom any writer might be proud, and yet more, one whom we think could only have risen and flourished in the British Isles.

H. W.

In his second and last lecture on "Modern Methods and their Achievements in Bacteriology," delivered at the Royal Institution, Dr. Edward Klein was mainly engaged in the discussion of the chemical activity of bacteria. He began by speaking of the flagella, which gave certain species the power of brisk movement, and showed how appropriate methods of staining these flagella had enabled some varieties that resembled each other very closely to be clearly distinguished. Reference was next made to the existence of spore-forming bacilli, and the practical importance of this fact was emphasised on account of the enormous resistance offered to inimical influences by some of such organisms. He proceeded to mention some of the practical results that had been obtained by the study of the action of pure cultures of various bacteria. It had been found that the cells of some bacilli included poisonous principles, a poison being formed in their protoplasm which had an action on animal bodies. Again, some bacilli contained in their substance a specific poison. Koch first pointed out that an extract of the pure culture of tubercle bacillus gave striking results when injected into an animal body already tuberculous, and thus afforded an important means of diagnosis. The lecturer next spoke of the toxic substances formed by disease-producing bacteria when grown in nutrient media, and described how these toxins could be used to give the animals, if they were suitably administered, immunity against the disease. In the blood of animals so treated an antitoxic principle was produced, which, in its turn, could be employed as a curative agent. The lecturer concluded with a consideration of the theories of the nature and mechanism of immunity, which was attributed to a germicidal principle, present in the blood of the immunised individual, and with a reference to the agglutination action of the specific blood serum and its practical application for diagnosis.

An Architectural Causerie.

Architecture at the R.A.: Further Suggestions. WE have to thank Gladstone, amongst others, for proving the Academy to be a public institution for the advancement of British Art.

In the strictest sense, therefore, are its members trustees; and, moreover, their responsibilities are greatly enhanced by the fact that only moral restriction need hamper them. We can hardly believe that were the Academy founded to-day the charter would be granted so unconditionally to any forty men. The system is emphatically un-English. However, it faithfully reflects the spirit of an age when the king was despotic and monopolies were in evidence. We have little doubt that the Academicians endeavour to the best of their ability to further the interests of British Art, and are considerate of public opinion. Hence these suggestions. No one with a knowledge of the Arts questions the pre-eminence of Architecture. But the statements of William Morris on this point at Birmingham, in February, 1894, may have weight. "The proper understanding of Architecture is at the present moment of such overwhelming importance in the consideration of the future of the Arts that I must say a few more words about it, even though it be in parenthesis. I mean, in plain terms, that the manner in which our buildings and especially our houses, are built is really the foundation of the whole question of Art; and that, if we cannot build fit and beautiful (not necessarily highly decorated) houses, we cannot have Art at all in our days. Reflect on it! a picture may be hidden in a drawing-room; a book may remain unopened on a library shelf; a drawing or engraving shut up in a portfolio; but a house is always in evidence to injure every passer-by by its badness; or benefit him by its goodness." Can we, therefore, believe that our trustees treat the pre-eminent Art entirely well in apportioning 7838 square feet to painting,* 1624 square feet to sculpture, and a *cul-de-sac* of 486 square feet to Architecture. Is it surprising that the B.P. cares so little for Architecture when their mentor in such matters treats her thus inadequately? Surely not. A restriction of three exhibits by outsiders would enable one more room to be given to the greatest Art, and might even do away with that unpleasant necessity, an opera glass. This is a time when signs are in evidence of a new style in embryo, and the R.A. should take warning from the R.I., etc., that the new growth must have ample space for its exercise. Wherefore we submit that architects should offer their desirable haven as an additional room for paintings, and in return ask for as many rooms to be opened in the winter, simultaneously with the "old masters," as the hangers consider will make a satisfactory exhibition. What an incentive to Art this would be! A room could be devoted to executed buildings with working drawings, photographs, &c., and another to *projets* with models; or a classification of rooms might be made, as ecclesiastical, municipal, domestic, decoration, designs, and so forth. Yet another suggestion. Let the R.A. have a representative in Parliament. From his very vocation it is obvious that the broad-mindedness necessary for a great architect renders him most suited for such an honour.

P. A. R.

* Approximate dimensions (plan only, not wall space), taken from E.A. catalogue, on the assumption that the architectural room is 27ft. long.

SPAIN:

Its Picturesque Cities and Monasteries.

III.—TARRAGONA.

By F. HAMILTON JACKSON.

THE city of Tarragona is the capital of the province of that name, and is the seat of an archbishopric, the holder of which is Primate "de las Españas," and therefore ecclesiastical rival of the Archbishop of Toledo. It is a remarkably healthy place, the air is mild but, from its great dryness, bracing, sometimes, indeed, becoming rather keen. There are no standing waters near, nor is irrigation employed. The walks are beautiful, looking down toward the sea, while in various directions on the land side are scattered pine woods, heaths, and aromatic wastes, where the wild lavender and sweet-smelling shrubs perfume the air even in mid-winter.

It stands upon a limestone rock, some 760ft. high, rising above the river Francoli and the sea, which has been occupied as a town ever since the Phœnicians made a settlement there. The name "Tarragona" appears to be a corruption of that which they gave it, "Tarchon," said to signify "a citadel." The brothers Publius and Cneius Scipio were the first Romans who occupied it. It was raised by Augustus to be the capital of the province, he having wintered here (B.C. 26) after his Cantabrian campaign, and here he issued the

decree which closed the temple of Janus. In the war between Cæsar and Pompey, Tarragona sided with the latter, but on the victory of the former submitted humbly to the lord of the world, sent ambassadors to him, and obtained his pardon and protection; and he resided here for some time before he went to Cadiz. Under Augustus it became the residence of the propretor, who had under his orders the three legates who governed Spain, being conveniently situated for communication with Rome. The city then extended on the west beyond the slopes on which it now stands, to the river Francoli, then the Tulcis, and on the south to the sea. On the east, and close to the Presidio (the prison) were the Thermæ, and temples occupied a great part of the space, among them being one to Augustus, erected during his lifetime. The amphitheatre rose not far from the shore (very few remains of it are left as it has been used for a quarry, and these are enclosed in the Presidio), and on the eastern slopes a large and noble stone ascent led from it to the upper city, where was situated the Palace of Augustus, of which there are small remains to be seen under the name of the Carcel de Pilato—Pontius Pilate being claimed as a townsman by the Tarragonese—and this building, the walls of which are 20ft. thick in some places, and probably Phœnician work in the lower stages, being assigned to him for a palace.

There is also a tower remaining from the same building, at the foot of the south walls of which began the spacious circus. The outline of it may still be traced in part of its course. It was 1212ft. long and 270ft. wide. Several houses have been built with its ruins against its very walls, and the area has become the present Plaza de la Fuente, the well from which it takes its name dating from Phœnician times. The capitol rose on the site now

occupied by the cathedral, and on the way from the Archiepiscopal Palace to the Puert^o Rosario there are still three towers which formed part of that edifice; two are embedded in the wall, the third standing isolated. The lower part of the walls, it may be observed, is Cyclopean, and dates from Phœnician times, the Scipios having made use of them as foundations for their own fortifications. Outside this gate is another relic of the same period, a gateway formed of huge stones, the sill of which is much below the present level of the ground.

In Roman times the population exceeded a million, but the various misfortunes which have befallen the town at the hands of conquerors have reduced the inhabitants to 30,000, which is, however, more than double the number of fifty years ago. The Goths made it their capital, but destroyed more than they built. They removed the archbishopric to Vich, but it was restored in 1089; to the disgust of Toledo, which disputes the primacy. The Moors, under Tarif, made of the city a heap, and the ruins remained uninhabited for four centuries.

"Tarkuna," as it was then called—the site of it, at least—was granted by Ramón Berenguer El Grande in 1116 to San Olaguer of Barcelona, who began a church there in 1128, being aided by Robert Burdet, a Norman chief, to whom he had delegated his authority. The wife of this Robert Burdet, Sibylla, during her husband's absence kept armed watch upon the walls, like a true chieftain's wife, and beat back the Moors, after which the place became a frontier fortress, and but little more, for Christian commerce centred at Barcelona, and Moorish traffic preferred Valencia. Tarragona was the scene of one of Suchet's butcheries in 1813. Women and children while trying to escape were shot down, and the streets ran with blood, while nameless horrors were perpetrated by the soldiery. Suchet boasted of his act, saying that he intended "to intimidate Spain by the destruction of an entire city."

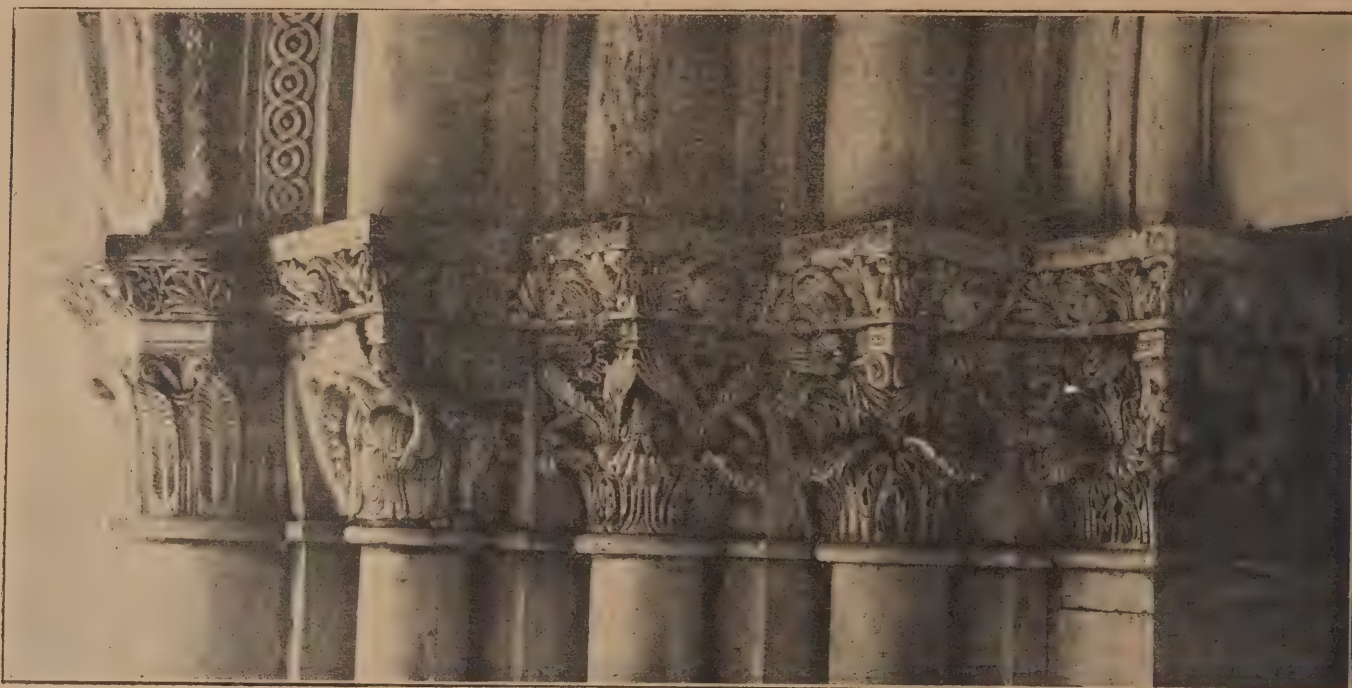
It is said that both architect and workmen were brought from Normandy to build the cathedral, and the severe character of the Architecture may be held to justify the report, though there is some admixture of Moorish detail and feeling to be traced here and there, and the design of the window traceries is of later date. No names are given of those who commenced the work, but, after some time, that of Maestro Fray Bernardo is recorded as that of the architect, and probably a good deal of the internal architectural carving of the earlier period is due to him. The cathedral stands on a platform to which eighteen steep steps ascend from the Market Place "de las Coles." The façade consists of a deeply recessed central portal, with two side doorways, between which and the central door are two massive piers crowned with pinnacles. The bases of these piers are decorated with small Gothic arches, above which are niches for twenty-one statues of apostles and prophets, which stand under truncated Gothic canopies. They are most of them the work of Maestro Bartolomé, who carved them in or about 1278, but a few were made by Jaime Castayls in 1375. Two or three niches are empty, and local tradition says that every hundred years one figure steps down! There is a central pillar beneath the arch, bearing a Virgin and Child, and above it the lintel is sculptured with the Last Judgment, the tympanum being pierced with tracery filled with coloured glass. Above the door is a large pointed window, and above it again a very fine rose of 1131.

The gable was to have been finished with a high pointed arch and the piers with slender pinnacles, according to the plans preserved in the archives of the cathedral, but the works stopped before they reached that height, and the façade now ends in a curiously truncated way. Above the side doors are two reliefs of early date, representing respectively the dream of St. Joseph, and the adoration of the kings. The doors are completely sheathed with pieces of sheet iron, laid on something like cut slates on a roof, each showing a diamond shape, nailed round the edges with copper nails, and with a central boss of bronze to each. This was done in 1456 by Archbishop Gonzalez, at



Ancient Masonry
Tarragona

DRAWN BY F. HAMILTON JACKSON.



TARRAGONA CATHEDRAL: CAPITALS OF THE CLOISTER DOORWAY.

which time the four beautiful knockers were made and the pierced hinges, all of them mainly cut from the iron when cold, not forged when red hot. The bell tower is a massive lantern-like structure with truncated pinnacles and cornice, it groups well in the eastern views of the cathedral with the transept and apse.

The nave is very solemn and severe in style, the arches being without mouldings and very massive. It is lighted by large fourteenth century clerestory windows of three lights. The plan is cruciform, and there are ten piers on each side, the east end being much darker than the west. This is partly owing to the great rose windows in the transepts having been filled with full coloured glass in the sixteenth century, which sparkles jewel-like in the gloom. It is so dark that the sacristan obligingly lights a taper to point out to visitors the things which he considers most worthy of notice in the retablo of the altar mayor, such as a spider's web, or other insects hanging from delicately-carved leaves, exceedingly detailed drapery, and so forth.

It is a work of the fifteenth century, and contains scenes from the life of Christ, and of the martyrdom of St. Tecla, who is the tutelary of Tarragona. In the choir the archbishop's throne is fine, and so is the *reja*. The organ dates from the sixteenth century, but bears its age well. The font was a Roman sarcophagus, found in the ruins of the Palace of Augustus. The crossing is very fine viewed from the door of the Capilla del Sacramento. The colour of the stone is cold, and adds to the appearance of severity in the design. There are a few early tombs of archbishops around and behind the high altar, the earliest being that of Cyprian, date 683. The roof of the Capilla del Sacramento is a Roman vault, it was the refectory of the canons when they lived in community. In the Capilla de los Sastres, the chapel of the tailor's guild, is a very good small Flemish stained glass window and a painted retablo, which looks decorative, but cannot be examined, there being far too little light.

(To be continued.)

ANOTHER addition to the Yorkshire College at Leeds was made by the laying of a foundation stone of a new wing, to be devoted to the leather industries, of which Leeds is now an important centre.

THE corner-stone of the new English church at Lucerne, which is being erected by the Colonial and Continental Church Society, was laid a few days ago by Mr. Frederick Robert St. John, Minister Plenipotentiary at Berne.

A VERY COMPETITIVE COMPETITION.

NOTES ON THE TROWBRIDGE TECHNICAL SCHOOL DESIGNS.

BY A SPECIAL COMMISSIONER.

THE Trowbridge Technical School competition was decided on Wednesday, June 8th. The duty of selection, which devolved upon the assessor, Mr. E. W. Mountford, was rather severe, as there were no less than sixty-seven designs submitted by architects in practice in the Midlands, London, and Cardiff. The subject has therefore proved an unusually attractive one, and it appears curious that there should be so few schemes of merit amongst the number.

The site selected by the committee is a corner one, with unobstructed light from three sides, and solid foundations 6ft. below the surface. It was, therefore, peculiarly adapted for the purpose and comparatively easy to deal with; the amount to be expended, according to the conditions, was some £5500, and the requirements embraced, besides the usual Science and Art rooms, a weaving shed of not less than 1200ft. super, plumbing, metal, and carpenters' and joiners' shops; cookery school and laundry, three class-rooms, and a lecture theatre to accommodate eighty students, and no provision was required for caretaker.

Mr. Mountford was engaged in adjudicating upon the designs on Tuesday afternoon and Wednesday, and a meeting of the Technical Education Committee was held on Wednesday afternoon, when Mr. Mountford read the following report:

"17, Buckingham Street,
"Strand, London,
"June 8, 1898.

"To the Technical Education Committee
"of Trowbridge.

"Gentlemen,—In accordance with your instructions I have carefully examined the whole of the sixty-seven designs submitted for your proposed new building. Several of them are of very considerable merit, showing not only much artistic ability, but also an intimate acquaintance with the requirements of this class of building. The question of cost has of necessity entered very much into the consideration of the competing architects, and some have therefore proposed to face the building with red brick and terra-cotta rather than stone. But I would strongly urge you

to have a stone building, or at least a building chiefly of stone. There is little objection to the use of some red brick, but terra-cotta is altogether out of harmony with Trowbridge, the old buildings of the town being of admirable design and of strongly local character—a character which could by no means be reproduced in terra-cotta. You would do well to allow, if necessary, sufficient to cover the difference in cost between brick and stone facings.

"Taking everything into consideration, I selected six designs as being the best, having regard to your instructions. Others of much merit had to be passed over for various reasons. These six designs are numbered respectively 57, 63, 8, 18, 55, and 29. Further consideration decided me to place No. 57 first, and No. 63 second. Nos. 8 and 18 are of such equal merit that I would like to bracket them as equal for the third place.

"I have the honour to be, Gentlemen,

"Your obedient servant,

"ED. W. MOUNTFORD."

After further explanations by Mr. Mountford, the numbered envelopes containing the names of the architects were opened by the chairman, Mr. W. Walker, and it was found that No. 57, placed first, was by Mr. T. Davison, 59, Great Ormond Street, London; No. 63, placed second, by Messrs. Briggs and Wolstenholme, Blackburn; and Nos. 8 and 18, equal third, by Mr. Dunbar Smith, 28, Theobald's Road, Gray's Inn, London, and Messrs. Hall and Bishop, Leighton Buzzard.

The architect of the selected design places the weaving shed in the internal angle of site, with top north light over, the physics room occupying the space between the side of same and Castle Street on the basement floor, the wood carving and other trades on the Museum Street front, lighted from an area extending to the boundary of site. On the ground floor are placed the cooking school, scullery, and larder, separated from the laundry by the entrance and staircase, which is on the Castle Street front. The only lavatories for males and females besides the accommodation for them in the basement is placed at head of staircase partly over the end of weaving shed. The lecture and preparation rooms are on the ground floor, lighted from Museum Street, with additional light from Narrow Wine Street, at the back of the students' seats and in the eyes of the lecturer, which we do not consider very well advised. On the first floor are the three class-rooms, with left-hand light, and the chemical laboratory and balance-room, with a balcony for opening noxious gases. The principal's room is at the head of stair-

case on this floor. The art rooms are all placed together in the attics, and the chemical laboratory is carried up two floors in order to keep the same ridge level throughout the two main street frontages. It is here that Mr. Davison has scored over his fellow competitors, for, by hiding the whole of his art rooms behind the roof slope of the building, he has in reality converted a four-story building into a three, from the perspective point of view. The rooms are well lighted from the N. and N.E.; but we are inclined to think that their utility would be much enhanced and the floor accommodation increased by giving the rooms vertical walls on all sides. The workshop accommodation appears very limited for the requirements. Mr. Davison cubes his building up at 228,728ft., and prices it at 6d., which works out at £5718. The heating and ventilating arrangements are well considered, and will be, by means of ventilating radiators, worked on the low-pressure hot water system, and the ventilation on the exhaust system. The elevation is treated in a quiet and unostentatious Georgian manner, with stone basement and quoins, and stone dressings to the windows, filled in between with brickwork; a simple stone cornice carries the eaves of the tipped and tiled roof.

No. 63, the second premiated design, shows the weaving shed at the back of site, with top light over one half, and the class-rooms are distributed on the basement, ground, and first floors, which, with the physics laboratory on the ground floor, are weak points in the scheme. The cookery school and laundry are on the first floor, and the art rooms on the second floor; the latter are not at all well lighted. The elevations show a much more ornate treatment than the first premiated design, though not nearly so satisfactory from an æsthetic point of view, though we must conclude, judging from the many objects in the plan, that the authors owe their position more to their elevations than anything else.

No. 29, one of the third premiated designs, is chiefly remarkable for the extraordinary curly character of the printing, and still more eccentric elevation. The weaving room has no top light, and the physics laboratory is placed on the ground floor. The art rooms on the second floor appear to have been well considered. The author enters his building from the Castle Street side, beneath an overhanging bay supported on brackets. A good perspective drawing shows the treatment of the exterior to great advantage, but we must take exception to the bay window on the Museum Street frontage.

The authors of the other third premiated design arrange their building round a central triangular area, which we consider would be of very little practical advantage for lighting purposes. They likewise give no top light to their weaving shed, and their class-rooms are divided between the three lower floors, with the physics laboratory on the first floor, three weak points in the design; they also divide the art rooms between the first and second floors, which is not desirable. The elevations are Renaissance in character, with stone facing.

The highly commended designs (it sounds rather like a poultry show) are by Messrs. Tyars and Jago and Mr. F. E. Thickpenny; the former send in a rather unfinished set of drawings, with no top light to weaving shed, and physics laboratory on first floor, where they also put their lecture theatre and chemical laboratory, a disposition which has been followed by other competitors.

No. 60 shows a pleasing elevation, but bad plan, and is cubed out at 6d. and 4d. No 34 is by Messrs. Houston and Houston, who have a very fair plan, and place their lecture theatre on the first floor with the chemical and physics laboratory; the class-rooms are not all on the same floor.

No. 50 sends a very good plan with the exception of the physics laboratory on the first floor; top north light to weaving shed and the other rooms well placed and arranged. This scheme appears worthy of a better place in the competition than has been awarded to it.

No. 58, by Mr. Alfred Cox, is also another good

scheme, but having no top light to weaving shed. The lecture theatre, chemical laboratory, balance-room, and class-rooms are all placed on the first floor; the art rooms are well placed and well lighted; a good perspective view is submitted which shows an architectural treatment of Georgian character of brick and stone. We must, however, take exception to the brick arched treatment below the eaves cornice.

No. 54, by Mr. Wellar, is remarkable as being the only design we noticed with the entrance at the angle. The author has in consequence placed his rooms at an angle with the frontage line, which has involved untold difficulties in the plan.

No. 53 is arranged with a central area opening out to Narrow Wine Street; the rooms are ranged round same, by which means the author has been able to condense the building down to three floors. There are many defects in the plan, and the lighting is not all that could be desired.

Nos. 61 and 15 are by Mr. J. H. Phillips. Both plans are poor. The former shows a curious circular arrangement in the elementary art room, apparently for the purposes of model drawing. This building is entered from Castle Street, and has a central area.

No. 40, by Messrs. Battery and Birds, shows the class-rooms on the ground floor, and has arranged the cookery school with scullery and larder between same and laundry; the building is entered from Museum Street.

No. 30 sends in an extraordinary elevation of ponderous character, and a very bad plan.

No. 33, by Messrs. Silcock and Reay, exhibits a good perspective in strong line and wash. The weaving shed has, however, no top light. The lecture theatre is arranged with circular seats.

No. 62 shows a very ill-considered plan and poor elevations.

No. 37 puts the principal's room near entrance and enter the building from Museum Street. No perspective view is exhibited.

No. 7 is one of the most curious and remarkable schemes in the room. The plans show a wonderful kind of corkscrew staircase in the centre of the building, arranged on the lines of Louis XV. curves; the rooms are badly placed and lighted; the elevations suggest the music hall rather than the technical institute, and are very scrolly and curly, also very unfinished, which is perhaps as well.

No. 25, by Messrs. Wimperis and East, exhibits a poor plan, but, on the other hand, a good style and character of elevation.

No. 1, by Mr. Martin Brooks, shows a fair plan, but poor elevation.

No. 67, by Messrs. Goldsmith and Potter, has a satisfactory elevation; but weaving shed has no top light, and there are other defects in the arrangements.

No. 49, by Mr. Stanley, shows the entrance from Market Street between two semi-octagonal projections carried up to first floor. The elevations are quiet and dignified. The weaving shed has a partly glass roof.

No. 51, by Mr. Lewis, has a poor plan. The lecture-room and preparation-rooms are placed



TARRAGONA CATHEDRAL: FROM THE SOUTH-EAST.



TARRAGONA CATHEDRAL: CLOISTER WALK.

on the ground floor. The perspective drawing does not do justice to the elevations.

No. 46, by Mr. Wills, gives top light to weaving shed, and puts the physics room in basement, with a central staircase. The plan is satisfactory and the elevations are shown to advantage by a perspective view in the style of Raffles Davison.

Doubtless the features which guided the assessor in the selection of the first design were that the weaving shed was entirely top lighted, the class-rooms well arranged together, with left hand light in each case, the physics laboratory on the solid ground, as it ought to be, and the Art rooms lighted from the north and north-east, this also being arranged for the painting room. We consider, however, there were many better schemes in the room than either the second or third premiated designs, for as pointed out above, they present defects in their arrangements from which other designs were entirely or partially free; neither do we consider it a just principle to divide the third premium between two competitors.

In conclusion we must congratulate the Trowbridge Technical Education Committee on the exceedingly able manner in which the designs have been exhibited to view in the Town Hall, and the straightforward way in which the competition has been conducted throughout.

The old Renaissance buildings in the town are of very good character, and we trust the selected architect will introduce the feeling displayed in the details of that work, and thus continue the local characteristics.

The foundation stones have been laid of a police station and court house at Halifax.

The building trade in New Zealand seems to be in a bad way, for during April eleven builders and contractors in Wellington filed their schedules or compounded with their creditors.

The Parliamentary Committee of Newport Borough Council recommend the purchase for £5350 of a site belonging to the Ecclesiastical Commissioners, near Caerleon, and containing fifty-three acres, for the new borough lunatic asylum.

SPEAKING of Troyes Cathedral, in his article on "A Summer Sunday in Troyes," which appeared in our last issue, Mr. Thos. Francis Bumpus was made to remark, through a typographical error, that the edifice was "one of the few French churches planned with aisles to both nave and choir." This should read: "One of the few French churches planned with double aisles to both nave and choir."

ARCHÆOLOGISTS IN ESSEX.

THE Essex Archaeological Society held its first summer outing on Saturday week. The first jaunt was from Chelmsford to Roxwell. A visit was paid to the church, restored in 1854, which has very little of interest from an archaeological point of view. Not far from the church is Roxwell "Dukes," where a curious old portrait, let into the oak panelling above the fireplace, was seen in one of the rooms. The "Dukes" is a very old farmhouse, with a picturesque situation. From here a move was made for Skreens. The mansion, a large, square red brick building, having no pretensions to architectural beauty, takes its name from a wealthy family named Skreens, who possessed it early in the fifteenth century. The house has some very fine apartments, the hall being unusually large and lofty, and richly decorated. After a brief stay here, and an inspection of some of the rooms and the garden, the party moved to Willingale. There are two parishes of that name—Willingale Doe and Willingale Spain, and they are said to derive their distinctive names from their owners soon after the con-

quest, William d'Ou and Hervey de Spain respectively. The curious thing about the two villages is that their churches stand

IN THE SAME CHURCHYARD,

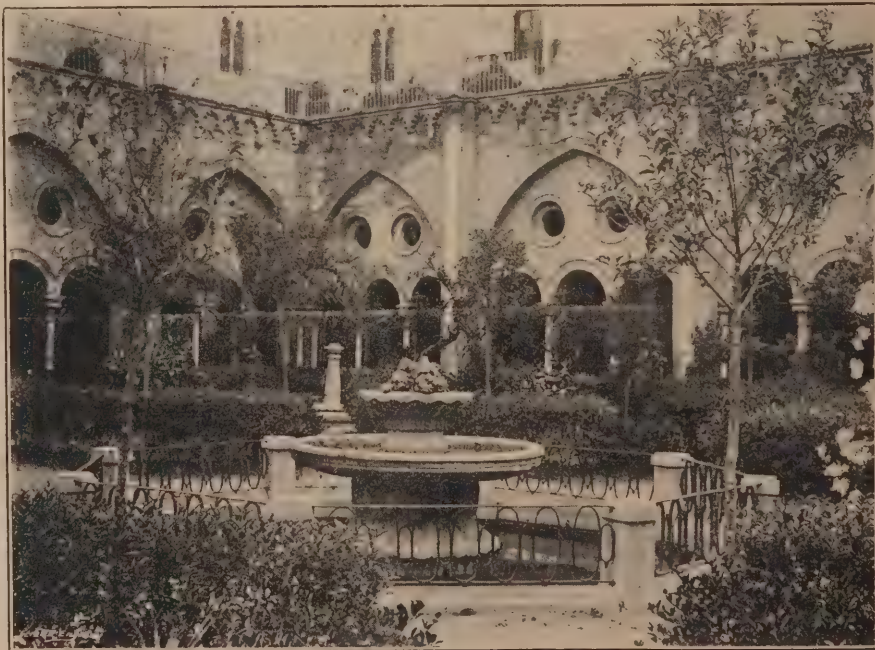
about 50yds. apart, this being the only instance of the kind in Essex. How they came to be erected so it seems impossible to determine. Tradition has it that they were founded by two rival sisters, but as the churches are of different ages, that story can hardly be true. Willingale Doe church was first inspected, and a short sketch of its history was given by Mr. W. C. Waller. The church, it was explained, was probably built in the fourteenth century, but it has undergone many alterations. On the south side of the chancel is a huge marble monument to Sir Robert Wiseman (1641), of Torrell's Hall, and on the tomb is an ancient helmet, which, from its size and weight, must have produced many a headache for its wearer. There are several brasses in the church, perpetuating the memory of some of the members of the old families of the neighbourhood, and these were described by Mr. Miller Christy. The church of Willingale Spain, which dates from the early Norman period, was also inspected, and a paper on

ITS ORIGIN AND HISTORY

was read by the rector. This building has also undergone alterations, and in 1748 it was made "as much like a whitewashed barn as the wit of man could devise." From the Willingales to Fyfield, the next stopping-place, the drive was through some very pretty and well-wooded country. At Fyfield the members were welcomed by the rector, who read a paper on the church, a large, ancient, and interesting structure, dedicated to St. Nicholas. There are several Fyfields in England, and curiously enough, nearly all their churches are dedicated to St. Nicholas. From Fyfield the party drove on to Chipping Ongar, where, under the direction of Mr. I. C. Gould, some extensive earthworks were examined and described. These are now thickly overgrown with large trees and underwood, and form a very pleasant and secluded retreat. Mr. Gould began his remarks by a reference to Henry de Lucy, one of the Norman barons, who held high offices in the time of Henry I., and built

A STRONG CASTLE AT ONGAR

on the site of these earthworks. But before his time, said Mr. Gould, there was no doubt a castle there, erected when the Danes and Saxons were struggling for supremacy, and probably even before that period the works were used as a Roman encampment, so that they would date back 1800 years. In the Norman times the castle was no doubt a huge,



TARRAGONA CATHEDRAL: THE CLOISTERS.

massive, and imposing building. In Elizabeth's reign it was pulled down, and the present farmhouse near the site probably built from some of the material. Dr. Laver, however, said he should go back further than the Roman period for the construction of these earthworks; he had an idea that such triple-moated fortifications were of British origin. He was of the same opinion with regard to those at Pleshey and Rayleigh.

A NEW IRISH CHURCH.

THE foundation stones have been laid of a new Presbyterian Church at Malone. The building consists of a nave and aisles with large projecting transepts. Prominence is given to the main doorway, which has octagon shafts, with moulded bases and caps, carrying a Tudor arch richly moulded and carved. Angular buttresses are placed at each side of the jambs, surmounted by moulded battlements. The main gable contains two large tracery windows, embraced by a relieving arch, with sable moulding,

A STORY FROM SOMERSET.

VANDALS IN THE AGGRESSIVE.

IT is a sorry story that comes to us from Somerset. The river Barle is spanned just below Dulverton by a bridge, which is noble in its old age. Its old stone guard walls are wrinkled and somewhat decrepit, so the Somersetshire County Council, with infinite facility, is going to mend the matter by putting up new walls of blue Staffordshire bricks! A correspondent—Mr. R. Staddon, Dulverton—sends us a timely protest:—"Barle Bridge," Dulverton, is an old stone bridge spanning the river Barle at the entrance to the town of Dulverton. The guard walls of the bridge, having been neglected, stand in need of repair. The Somerset County Council have discussed the matter, and have adopted a plan (presumably prepared by their surveyor), by which the old stone guard walls are to be taken down and new ones put up in blue Staffordshire brick. It is impossible to imagine a greater monstrosity, and it is incredible that an

IN THE HARTZ DISTRICT.

AN EASTER SKETCHING RAMBLE.

By G. A. T. MIDDLETON, A.R.I.B.A.

(Continued from page 333.)

II.—AT HANOVER.

FOR all practical purposes there are two Hanovers; one, a fine, modern town, with wide streets, large shops, and great public buildings; and the other a mediæval city of narrow lanes, rendered all the more dark and narrow by the overhanging, upper stories of the wooden buildings. The old town is, however, enclosed within the new, and is being rapidly absorbed by it. Undoubtedly much of the old has already disappeared, and signs of continued demolition are in evidence, so that, in the course of another decade or so, one



"A STORY FROM SOMERSET." BARLE BRIDGE, DULVERTON.

having carved bosses and apex. Above the latter rises an angular finial. A massive buttressed tower, with a deeply recessed doorway, is placed at the south-west angle of the church. It is pierced by tracery belfry windows, and is crowned by a well-proportioned stone spire, which terminates in a gilt copper weather vane at a height of 125ft. At the opposite angle is an octagonal projecting staircase, with angle buttresses and a doorway between them. At the transepts are placed large traceried windows. All the gables are coped with moulded stones, and the roofs will be covered with green Westmoreland slates. The walling is of selected Scabro sandstone, with mullions of Giffnock stone. A portion of the front is divided by a flying buttress with novel effect. All the internal joinery will be of selected pitch and yellow pine, with Carolina sheeting for the roof and wall dados. The series of Tudor arches dividing nave from aisles will be richly moulded. Heating will be combined with ventilation. The contractors for the work, which is being rapidly proceeded with, are Messrs. Courtney and Co., and the architects are Messrs. Young and Mackenzie, Belfast.

A.R.I.B.A. should have conceived a scheme in such execrably bad taste. Should this precious plan be carried out, there will be a bridge, the piers and arches of which are of stone clothed in all those wondrous greys which are the work of the storm and sunshine of many a winter and summer, and the guard walls of one of the most ugly of building materials in use at the present time—a monument to that kind of economy (?) which, for the sake of a little (if any) extra cost, would utterly ruin the appearance of a bridge that is the admiration of artists and all having any eyes for the picturesque. We have had the appearance of one quaint old bridge at Dulverton irretrievably ruined already under the auspices of the same Council by the introduction of blue Staffordshire bricks. The people of Dulverton are not going to submit to have Barle Bridge treated in a similar manner. Probably it is not possible to treat the bridge in such manner as to make it a positive addition to the beauty of the landscape, but it certainly is possible to treat it in such a manner that it shall quietly harmonise with its surroundings, and not be the hideously obtrusive object it would be if the plan as proposed at present is carried out."

might probably look in vain for any domestic work of earlier date than the nineteenth century; undoubtedly to the benefit of the inhabitants from a sanitary point of view, and also from that of the fireman, but an irreparable loss of the picturesque. Fortunately, the modern work, as a rule, displays architectural taste, and the building is everywhere sound, mostly of bricks, and with both material and workmanship substantial. The more important buildings, too, are upon a really magnificent scale, particularly the palace and the theatre—the latter, a noble, classic edifice, open on all sides, of the type of which we have heard so much and seen so little in England of late.

Of the old buildings, the Market Church claims the greatest amount of attention, with much gold and rich colour introduced in the chancel with excellent taste. In most Continental countries, especially where the Roman ritual is in use, this sort of thing is gaudy and vulgar in the extreme, possibly captivating to some, on account of the glitter, but hurtful to most people. In Holland, where the Lutherans and Romanists are in approximately equal numbers, as also in some parts

of Germany where the same conditions obtain, the Lutheran churches are stripped of all decoration, and are frequently whitewashed; but round about Hanover, where all are Lutherans, the decoration is just as magnificent as in the Romanist churches of Brussels or Paris, but in infinitely better taste.

The church is not exceptional externally, save for two features, but these are rare and of considerable interest. The western doorway, in itself a German poverty-stricken example of the "Flamboyant," is made to carry an external balcony or pulpit, and the combination, strange as it may sound, is decidedly happy, looking well even with wire-drawn tracery, and full of possibilities under skilful treatment.

The other feature, though curious in effect and by no means lacking in a certain beauty, is by no means so adaptable, it being the occurrence of memorial mural tablets, many of them of rich design, upon the outside walls, where they naturally have not been very well preserved. They are mostly of the seventeenth century date, and of sandstone, inserted in the brick walls of the church, the bricks of which, by the way, are of the unusual dimensions of 10 in. x 5 in. x 3 in., and so very different from the small bricks of the low countries, and giving a more solid appearance than our own.

Of seventeenth century Renaissance there is also a fine example in the Leibnitz Haus, built in 1652, and now a museum. In its general idea and richness of detail, it is distinctly reminiscent of the François work of France, such as the Hotel de Valois at Caen, or the Hotel Bourgheroulde at Rouen, erected a century earlier than this, but the delicacy of the French detail is entirely lacking, and its wonderful elegance of proportion has been missed. It is, in fact, the sort of thing from which a suggestion may be taken, but which is not to be studied closely. The ironwork in grilles and window-guards is, in this respect, better. Rod iron is used and worked in scrolls, the terminals being hammered flat into masks and leaves, and simply stamped on face.

Close to the Leibnitz Haus is one of the stepped gables, with scrolls filling the steps, which one generally consider as characteristically German; but it is of timber and not of stone, and the question at once arises whether the form originated in stone or wood construction. Certainly it suits timber well and looks more natural in that material than in the more solid stone, timber lending itself better to the scroll work carving, and the surface enrichment which is largely used.

(To be continued)

At Hendon the foundation stone of a new infirmary was laid a few days ago. The total cost of the buildings and site will be nearly £108,000.

AFTER the frivolity—to use a mild term—of the Lantree exhibition, lately at 5, Regent Street, it strikes quite a new chord to meet there pictures so grave as those of the modern Dutch school, or the not long ago French Romanticists. Together with these tender water-colours of dignified field labours and landscapes by Anton Mauve, sad yet sadly true pieces of genre by Josef Israels, dreamy visions that seem almost to have the charm of evanescence by Corot, forest depths by Diaz, a Daubigny of his favourite "Banks of the Oise," with little cloudlets full of illumination in the high sky and shelving ground whose formation is beautifully delineated, there are what might seem incongruous works. Yet, as a matter of fact, no such result ensues, for the living British painters who are included have a good deal of likemindedness with the distinguished foreigners they share the walls with. There is a strong little Peppercorn, "The River," and a masterly little picture of a lordly recumbent tiger, "The Edge of the Jungle," by Mr. J. M. Swan, and a few more things of worth. Nor must such various examples of J. Maris as "Gathering Seaweed," "The Bridge," and "Old Amsterdam" be overlooked.

College Buildings at Reading.

THE NEW ADDITIONS.

THE Prince of Wales opened the new additions to the University Extension College, Reading, on Saturday week. Formed in 1892, at the instance of the House of Christ Church, Oxford, the college was incorporated in 1896, when the British Dairy Institute, formerly at Aylesbury, was added to it, with a block of handsome new buildings as the temple of orthodoxy in butter and cheese making. When the college, as distinguished from the institute, was founded, it had two buildings. One was an ancient and massive structure in flint, stone, and brick, hidden behind the new Town Hall. Originally, the dormitory of St. John's Hospital, attached to Reading Abbey, the ruins of which are still one of the

GLORIES OF THE TOWN,

had been used as a school of natural science, and it remains, the noblest feature in some respects of the new college. Reading educationists of to-day think, and most people will agree with them, that it was a happy fortune which linked the college with one of the most splendid traditions of the town. The old and the new buildings, including among the latter the block occupied by the Dairy Institute, form a picturesque group, especially as seen through the trees of Forbury Gardens. The one opened on Saturday week is of late Tudor Architecture, treated after the manner of collegiate edifices of the sixteenth century. The walls are of red brick, the windows of stone with moulded mullions and transoms. The architect is Mr. S. S. Stallwood, of whom it is written authoritatively that to his judgment and power of adaptation the college has often been indebted. More than £20,000 has been the cost of the properties and buildings now held by the learned corporation. No fewer than seventy rooms may be counted in the several buildings. There are three particularly noteworthy. The one called the Central Hall proclaims its antiquity by its

PONDEROUS WALLS AND CURIOUS RECESSES,

viewing which a learned visitor declared that his imagination was carried back to the "Reding" of old which Leland beheld as he paused on the Sonning uplands, a beautiful picture of running streams and fruitful pastures, and clustering towers, the home of saints and scholars. Another fine chamber is the College Hall, 44ft. long, 36ft. wide, 19ft. high. Its walls are half-panelled in pine, and it has five large mullioned windows, one of which is of stained glass, the work and gift of the Art students. This labour of love and talent displays the arms of Christ Church, of Reading, Oxford University, and the College itself. Above the chamber just described is one of equal size, the antique room, with green panelling and other wood work. The beauty of this apartment is the opened timbered roof.

MR. C. W. WILCOCKS has held an inquiry at Coventry into the proposal of the Corporation to borrow £33,000 for the purposes of electric light extension.

THE Duke of Devonshire visits Manchester to-day (the 22nd inst.) to open the new Christie Library at Owens College, and to lay the foundation-stone of the Whitworth Hall, another important addition to the college buildings.

A LOCAL Government Inquiry has been held into an application by the Warrington Corporation for sanction to borrow £31,933 for purposes of street improvement, £10,000 for the purchase of slot and other meters, and £700 for the purchase of a recreation ground.

THE principal thoroughfare of Blackpool (Church Street) has recently undergone considerable improvement, and a new square has been made at the junction with Abingdon Street. Hitherto the great obstacle to completing the work has been an ugly wall projecting right across the footpath, which the Winter Gardens Company refused to pull down.

KEYSTONES.

THE Duke of Connaught will to-day (22nd inst.) unveil the Albert Memorial window in the Collegiate Church of St. Saviour, Southwark, which has recently been restored.

At Bournemouth the Marquis of Northampton has opened the Victoria Home for Crippled Children, which has been erected in Alum Chine, near the sea, in connection with the Ragged School Union.

THE new Laboratories of Physiology and Pathology in connection with University College, Liverpool, which have been erected and equipped in the most adequate way for study and research at a cost of over £20,000, will be formally opened on the 8th October.

An exhibition of specimens of practical work by the candidates at the Technological Examination of the City and Guilds of London Technical Institute has been opened at the Imperial Institute. The majority of the exhibits are the exercises of student-apprentices during the examination, but some more complete specimens of handicraft are included. No candidate is allowed to exhibit specimens who has not also presented himself for the written examination in the principles of his craft. The exhibits include specimens of bookbinding, carpentry, metal work, plumbers' work, weaving, and other crafts. During the past session 32,155 students have received instruction in the technological classes registered by the institute, besides over 2000 students enrolled in the manual training classes. The total number who entered for examination was 13,060, exclusive of those in India and the colonies.

LORD HERSHELL, in opening the exhibition, remarked that they heard nowadays a great deal of the stress of foreign competition, and, although he was not one of those who regarded the future with gloomy and despairing eyes, still it was idle to ignore the fact that competition was constantly increasing, and they must face the fact that greater efforts must be made in the future than in the past if England was to hold her own. There was a time when all thoroughly solid and finished work was turned out in English workshops, but this was not the case to-day. The great facilities for communication had turned the world into one vast market. To master foreign competition we must send into the world goods in relation to price as good or better than other nations, and for this purpose improvement in the training of the worker, which should give him both speed and accuracy, was necessary.

MESSRS. J. AND L. HARRIS, of 28, Berry Street, Liverpool, have now on view at their galleries four excellent cabinet pictures attributed to Nicholas Limaeker, one of the "little masters" of Flanders, who flourished in the 16th century. Limaeker was dominated by the genius of Rubens, to whose Art his work bears a strong resemblance, saving that it adds to Rubens' exuberance of colour a minuteness of handling seldom seen in the work of the more grandiose Peter Paul. Limaeker was born in 1575 at Ghent, and became a pupil of Mark Guerard. After leaving his master's studio he went to the Court of the Prince of Paderborn, where many of his larger pictures were painted. In his youth he earned the soubriquet of "The Rose," a nickname which he justified later by the efflorescence of his colour. There are now in the Church of St. Nicholas at Ghent two pictures by him, regarded as his best efforts. The finer is "The Fall of the Rebel Angels," the title of the other being "The Merciful Samaritan." He died at Ghent in 1647. The four examples of his Art now in the possession of Messrs. Harris comprise the following subjects, drawn from the treasury of classic allegory:—"Venus and Adonis," "Jupiter and Juno," "Neptune and Amphitrite," and "The Birth of Aphrodite." They are all remarkable for precious colour, minute detail, and an almost pure classicism in the drawings of the figures. After the fashion which led the old Dutch masters to make their cabinet work practically imperishable, they have all been painted, not on canvas, but on large copper plates.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
June 22nd, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

MR. RICHARD GARNETT, C.B., LL.D., of the Printed Books Department of the British Museum, has joined the Society for the Protection of Ancient Buildings.

THE Journal of the Royal Institute of British Architects publishes in its current number a letter from the late Mr. Gladstone, just discovered among the Council documents:

"Hawarden Castle, Chester: 28 Oct., 1874.

"Sir,—I am very sensible of the compliment conveyed to me by the request which is contained in your letter of the 22nd.

"Nevertheless, it is my fear that I shall not be able to comply. My time is more than filled with engagements that I cannot set aside, and I could not readily turn to the thorough consideration of any matter such as would be suitable to be laid before the Society of British Architects. If within a reasonable period such a topic as would be manageable should occur to me, I will not scruple again to address you.—I have the honour to be, Sir, your faithful servant,

"W. E. GLADSTONE.

"C. L. Eastlake, Esq."

This letter was in response to a letter from the Council inviting Mr. Gladstone to read a paper before the Institute. The paper was never read, but at a meeting on the 30th April, 1877, when Dr. Schliemann delivered his lecture on "The Architecture of Troy," Mr. Gladstone, who was present, opened the discussion in a scholarly speech, and finally moved the vote of thanks.

MR. F. C. GOULD, who is now holding an exhibition of his caricature drawings at the Continental Gallery, has written a more than usually interesting preamble to his catalogue: "It is said that the earlier stages of a child's existence epitomise all the ages of evolution, and this is to a large extent true of the art of drawing. At first the instinct is to scratch with any available material on wall surfaces or tempting pages; then comes the period when the circle and the triangle do duty for head and body. After that the side-face and characterisation, and gradually the faculty of form and proportion is developed. When once man had found that humour can find expression in lines he never forgot it. The Egyptians caricatured on papyrus and stone, the Greeks and Romans on vases and in sgraffitos. In the middle ages Gothic ornament, with its conventionalised realism, afforded full scope for the grotesque and the satirical, which were daringly and cynically introduced on capital, corbel, or gargoyle, and notably under the miserere seats in the choir stalls. The

Renaissance, too, was rich in grim satire and Rabelaisian fancy. As for modern times, there is no need to enlarge upon the place which caricature fills to-day, both for amusement and political propaganda. Broadly speaking, the changes in method which have taken place are due, not so much to the fancies of caricaturists as to necessary adaptation to the popular mood of the day. In one generation the bludgeon is most effective, in another the rapier. At one time, when things moved more slowly than they do now, political caricatures were crowded, and depended largely on diffuse text. Nowadays everyone is busy, and cartoons must be concrete, and convey their meaning to the eye at first sight." Who will deny that Mr. Gould's succeed in touching the spot instantaneously?

THE annual general meeting of the supporters of the Royal Architectural Museum and Westminster School of Art was held at the museum, Tufton-street, Westminster, a day or two ago, the Duke of Westminster, president of the institution, being in the chair. The report stated that the past year had been a notable one in the history of the institution. It had been found possible to make, at a considerable outlay, a useful and substantial addition to the accommodation required for the Westminster School of Art, and incidentally to free the central hall of the museum from studies which were to some extent out of harmony with their surroundings. Four commodious class rooms had been added to the accommodation devoted to the school. The expenditure on the new building was about £2850, of which up to the present date about £2600 had been paid. The surplus of income over the ordinary expenditure for the year was £472.—The report was adopted on the motion of Mr. Aston Webb, seconded by Mr. J. P. Seddon.—On the motion of Sir Arthur Blomfield, seconded by Mr. J. H. Pollen, the Duke of Westminster was re-elected president, and the several vice-presidents were also re-elected.—The Duke of Westminster, in thanking the meeting for his re-election, said he considered it an honour to do anything in his power to second the efforts of the committee in keeping up the reputation of the museum and school of art as a whole. He had little doubt that the recent addition to the accommodation of the school and the consequent opportunities for the development of its work would increase its popularity and fame as one of the most successful centres of art teaching to be found in the United Kingdom. He congratulated them on the result of last year's examinations, when, in the most advanced subject (drawing from life), sixty-one candidates were presented from the school, of whom twenty-two obtained second-class certificates, twenty-nine first-class certificates, and eight "excellent," there being only two failures.

THE Daily Chronicle complains that provincial cities are falling an easy prey to the "seductive cheapness" of the system of overhead electric tramway traction. Neither the conduit nor the surface contact method have yet received a fair trial. The last town where the overhead system is recommended for adoption is Nottingham, which is now working its municipal tramways, and proposes to spend nearly half a million on extensions. The alternative systems considered were underground conduits, accumulators, and cable. Cable traction was at once rejected on the ground of its expense. The conduit electric system is also costly and uncertain. Accumulators are not making any progress, and cost three times as much as the overhead system. The only possible objection to the overhead system has, says the tramway committee, been greatly exaggerated. The poles can be made ornamental, and the danger from the wires had been "greatly magnified."

ARRANGEMENTS are now rapidly approaching completion for the opening of the electric railway which connects Waterloo Station of the London and South-Western Railway with

the new Mansion House Station. The line is, perhaps, for its size, one of the most remarkable from an engineering point of view that has been constructed within the metropolis. It is only about two miles long, but in that distance it burrows under the Thames, beneath St. Paul's Cathedral, and partially undermines the Mansion House. It has only two stations, but each of these is constructed on perfectly novel principles. That at Waterloo is immediately under the terminal station, and access is had to it from the platform level by means of a series of stairways connecting with a corridor tunnel running round the whole area of excavations. Extraordinary care has had to be exercised in carrying out the work to avoid interfering with the stability of the terminus, but by an elaborate system of underpinning all danger of subsidence has been averted, and in the result the engineers are able to show one of the most curious and interesting pieces of work that the railway system of the country can boast of.

At the Mansion House end equal skill has been exercised in the construction of the station. Here the superstructure was not a railway terminus, but a church—that of St. Mary Woolnoth—and extensive underpinning had again to be resorted to. The edifice, in fact, now rests upon a series of iron columns and girders whose foundations go deep into the bowels of the earth. The station itself will be nearly 100ft. below the level of the street. It will be reached by means of a shaft 75ft. deep and 24ft. wide, from a platform 20ft. below the level of the church. The booking office and waiting-rooms will be on the platform, and five lifts of novel construction will convey passengers to and from the trains.

MR. LABOUCHERE and Mr. G. Shaw Lefevre are in disagreement concerning the proposal to erect a monumental chapel as an annexe to the Abbey. Says Mr. Lefevre in a letter to the Times:—"I observe with satisfaction that he (Mr. Labouchere) no longer assumes an attitude of implacable hostility to the scheme of a monumental chapel as an annexe to the Abbey. Indeed, the fault he finds with my last proposal is that it is not extensive enough. He thinks that the sites of more houses in Abingdon Street should be taken for it, and that the site of his own house should be laid down in turf! The scheme he suggests is not very different from that originally contemplated by the committee of 1887, and which was modified later, when Mr. Pearson was consulted. It was thought, among other things, that Abingdon Street was too distant, and that the nearer the chapel was to the Abbey the more it would be considered a part of it. When Mr. Labouchere says that there is not room on the site of his house, between it and the Jewel Tower, for a sufficiently imposing building to harmonise with the Abbey and Chapter House he must pardon me for preferring the opinion of the late Mr. Pearson, the highest authority on such a subject since Sir Charles Barry, and who, as architect of the Chapter of Westminster, was in a very responsible position as regards the Abbey."

WE give an extract from a sermon by the Bishop of Clonfert, preached on the recent occasion of the laying of foundation stones of a new Catholic Church at Tallamore:—"Go to England. You will find there in many towns beautiful cathedrals designed by the genius of Catholic art and building the munificence of the Catholic kings, and princes, and people of England in innocent days. Go into them: they are still beautiful, so far as human power and human art can make them so; but there is no altar there, no Divine Presence there, there is no power to preach there, there is no sacrifice there as there once was. Beautiful buildings they are assuredly, but they are wells without water, they are bodies without the spirit which has flown; they are mere husks, because the Divine Presence and the Divine Power have fled, and they can participate in none of these things."

THE Hornsey District Council has spent about £30,000 in carrying out its scheme of

municipal cottages for working men. The cottages, 108 in number, are attractive in appearance, and form a little colony under the shadow of the Alexandra Palace. Each cottage is self-contained, and has a garden plot in the front and 50ft. of land in the rear. We know of no other municipal authority which has provided cottages containing sitting room, dining room, scullery, larder, and two bedrooms and large garden for 6s. 6d. per week, or with an additional room for 8s. 6d. Two roads have been made across the estate, and the streets, which are 45ft. wide, will be lined with trees. The cottages adjoin a new Board school, and the position is such that it will not in any way interfere with, or detract from, the better class property in the neighbourhood.

An effort is being made to restore the old parish church of Ryther, in Yorkshire. The church is very ancient, and its styles of Architecture, still to be seen, are Saxon, Norman, Early English, and decorative. The little village of Ryther, which is on the west bank of the Wharfe, is a mile or two from Cawood, and has a history of about a thousand years. The Danes in the course of their invasion of the North in the ninth century were its founders, and gave it the name of Riodr, which in their language signified a clearing. Two centuries afterwards it was recorded in the Domesday Survey that there were here a priest and a church, and it is interesting to note that the chancel arch of that church is standing to-day. There is some reason to think that all besides this arch having perished, a Norman church was built soon after the Conquest, and this having passed away, with the exception of one doorway and a few carved stones, the present nave, Early English in style, was built on to the old chancel arch. There was added, probably by Sir William Ryther, Knt., a chantry, in which was placed, between the years 1300 and 1520, five of perhaps as interesting monuments as are to be found in any church in the county, two of them furnishing examples of the armour, and two patterns of the ladies' dresses of their respective periods; while the fifth has on it some beautiful specimens of carving. The later knight's effigy is in alabaster, and that of one of the ladies in statuary marble. The church, though simple in style, has in former years had beauty and merit of its own. It was, however, about 120 years ago, sadly defaced by being covered with an unsightly one-span roof and a ceiling, and until its restoration was commenced in February last, the church was most grievously out of repair.

THE Princess Christian has opened the new school which has been erected by the governors of the Stepney and Bow Foundation. The new building, which stands on the site of Nos. 31 and 33, Bow Road, is in place of the temporary school formerly carried on in the same thoroughfare. It forms a complete block, the external portion being faced with red bricks, with Portland stone dressing, while in the interior are twelve spacious class-rooms, commodious laboratory, dining-room, and offices, planned to accommodate 300 girls. The contract price for the erection of the building was £13,000.

At a sitting of the Consistory Court of London, before Dr. Tristram, Q.C., Chancellor of the Diocese of London, a petition was presented for a faculty to sanction alterations and improvements in the Church of St. Giles, Cripplegate. It appeared that it was desired to remove the organ from the east-end of the north aisle and to rebuild it at the east-end of the south aisle, sinking a portion of the new organ to a depth of about 7ft., so as to avoid obscuring the monuments on the east and south walls of the church. It was proposed to fill in any vaults which might be found under the site of the present organ, and to utilize a portion of the site as a chamber for hydraulic engines for the organ in the south aisle. It was also intended to devote the space gained by the removal of the organ from the north aisle to the accommodation of

the Communion table, carved wood, and monuments from the church of St. Bartholomew, Moor Lane, which, under the proposal for the union of the vicarage of St. Giles, Cripplegate, and St. Bartholomew, were to be transferred from the latter church to the parish church of St. Giles. The cost of the alterations and improvements was estimated to be about £1700.—The Chancellor granted the faculty, ordering that, if any human remains were found under the site of the present organ, the faculty would provide for their being removed to the crypt of the churchyard, subject to such sanitary regulations as should be approved of by the Medical Officer of Health.

THE Romans constructed their main roads to last for ever, says the Carriage Monthly. They are true monuments, made of siliceous and calcareous materials, far superior to the highest type of modern work. The superstructure was a roadway, generally very strongly convex, and two side paths or footways. Near Rome the full width was often 20 metres, but not usually. From 3 to 3½ metres for the smaller roads, and from 4 to 4½ metres for the larger, are dimensions that have been generally noted. In mountain regions the road was narrowed to a single carriageway, 1½ metres. The sidewalks were large near the cities, but reduced to six-tenths of a metre in the outer districts. These were built of cut stone, at least on the border. At every twelve paces (18 metres) mounting stones were placed. At every 1000 paces (1481 metres) milestones were erected. In one instance the roadway was divided by a low wall down the middle, as if to surely establish two streams of traffic. Some of the best roads were paved with marble. The minor or secondary roads were not so carefully made. In the construction of the wagon road a ditch was dug to the solid earth, which was stamped or rolled, or even stake driven if necessary, then, on a floor of sand, 10 or 15 centimetres thick, a layer of mortar was placed, after which they placed successively four layers, as follows: Statumen.—The support or foundation. A course of several layers of flat stones, bound by hard cement, or, failing in that clay. This layer was usually 30 centimetres thick, and twice that in bad lands. Rudus.—A concrete of pebbles, stones or broken bricks strongly stamped together with iron-sheathed stampers. This layer, when finished, was usually 25 centimetres thick. Nucleus.—A layer of 30 to 50 centimetres of gravel or coarse sand, finer than the third layer, and rolled successively in small layers. Summum dorsum (summa crusta).—A convex layer, 20 to 30 centimetres thick or more, made somewhat differently according to the materials at hand. It was either paved with cut stone or laid with pebble and granite or metalled.

A MODEL of the City of Rome in the thirteenth century would afford us the strangest picture. Rome resembled a huge field encircled with moss-covered walls, with tracts of wild and cultivated land, from which rose gloomy towers or castles, basilicas and convents crumbling to decay, and monuments of colossal size clothed with verdure; baths, broken aqueducts, colonnades of temples, isolated columns, and triumphal arches surmounted by towers; while a labyrinth of narrow streets, interrupted with rubbish heaps, led among these dilapidated remains, and the yellow Tiber, passing under broken stone bridges, flowed sadly through the ruinous waste. Round the city, within the ancient walls of Aurelian, were tracts of land, here waste, there cultivated, resembling country estates in their extent. Vineyards and vegetable gardens lay scattered like oases through the whole of Rome, in the very midst of the present city. . . . Everywhere that the eye rested might be seen gloomy, defiant battlemented towers, built out of the monuments of the ancients. . . . These were the castles and palaces of Guelf and Ghibelline nobles who sat thirsting for battle, in ruins on the classic hills, as though Rome were not a city, but an open territory, the possession of which was to be disputed in daily warfare.—His-

tory of the City of Rome in the Middle Ages," by F. Gregorovius.

THE Post Office authorities have laid about forty miles of the large telephone and telegraph trunk line cable which is to extend from London to Birmingham. The laying of this cable is by far the largest piece of work the authorities have undertaken since they had control of the telegraphs. The cable, which is being manufactured by the British Insulated Wire Company, at their works at Prescott, has a total diameter of 2½in., and the weight of each mile of cable is about 22 tons. It is made up of seventy-six separately insulated wires, each mile of which weighs 150lb. The manner in which the cable is constructed is interesting. Each conductor is separately enclosed in a tube of paper, so that it is entirely surrounded with air. The object of this is to get as much air round the conductors as possible without increasing the size of the cable. Air has a lower capacity than any known substance, and low capacity on a cable is equivalent to small absorption of current. This means that speaking is possible over a greater distance than under any other circumstances, and it was not until a cable was invented on this principle that it became possible to speak over any considerable distance by means of underground wires. The ordinary overhead wires are, of course, always surrounded by air, and this is why speaking is possible over such great distances, but long lines and many wires, "cross talk," and the danger of breakage render this system very troublesome and expensive. On the new cable the conductors are made up in pairs, the wires stranded together round one another, and the whole covered with a heavy sheathing of lead. At intervals of five miles pillars are erected, and at these points dry air is to be forced through the spaces into the cables, so that if the lead sheathing should become punctured the presence of the hole will be instantly discovered.

SOME interesting "bits of old Bristol" have disappeared from the top of the Pithay, where new business premises are being erected. One of the most picturesque of the old houses was the premises built at the time of the Commonwealth, which was conspicuous from Wine Street. This exists now only as a memory, but, fortunately, the old coat of arms that adorned its front is preserved at the Museum. It is believed that Thomas Harris, living in the adjoining property, erected the old house now demolished, and adopted the "brewer's arms," referred to for external decorations. Mr. J. E. Pritchard, in a paper read last year before the Antiquarian Club, states that the Pithay derived its name from "Pit-lodge," or "Well-close," and the old cluster of houses was originally just outside the earlier or inner wall of the city, and built upon the descent of the hill that trended down to the river From.

THE long-deferred response to the petition of the vicar and churchwardens of Liskeard for a faculty from the diocesan authorities to enable the dilapidated tower of the parish church to be rebuilt, was received a few days ago. A citation has been forwarded for exhibition on the door of the parish church, setting forth in the quaint phraseology used in these ecclesiastical matters, the circumstances as stated in the petition, under which a faculty was asked for. The vicar and churchwardens it is said, have represented by their petition to the Lord Bishop of Truro that the tower of the parish church of Liskeard was in a very precarious and dilapidated condition, and had recently become so dangerous that the petitioners, acting on the report of the borough surveyor, and with the consent of his lordship's vicar-general, removed the upper portion thereof and the six bells. It was now proposed, in accordance with plans prepared by Mr. John Sansom, architect, of Liskeard, to take down the remainder of the tower of Liskeard Church and rebuild the same, and also to erect a choir vestry, insert a west window, and remove and raise the tower arch, &c., at an estimated cost of £3500. Thus the diocesan authorities have consented to permit the rebuilding of the tower of Liskeard Church.

R.I.B.A.

THE ROYAL GOLD MEDAL, 1898.

PRESENTATION TO PROFESSOR AITCHISON, R.A.

THE Royal Gold Medal of 1898 for the promotion of Architecture has been presented to Professor Aitchison, R.A., President of the Royal Institute of British Architects, for his works as an architectural writer, and for his executed works as an architect. The presentation was made at a meeting of the Institute on Monday night by Mr. F. C. Penrose, F.R.S., who is Mr. Aitchison's predecessor as President of the Institute. Mr. Penrose, in presenting the gold medal, gave the following personal details of Mr. Aitchison:—Our President's father was an architect, and appears to have destined him for the profession from the very first. There have been, no doubt, cases where this "predestination," if I may call it so, has had an unfavourable effect, and some of the most brilliant careers (of which those of Lord Leighton and the President of the Royal Academy are instances) have been of those whose natural bent opposed itself successfully to

PARENTAL PROPOSALS.

But exceptions do not prove a rule, and it is evident that in general the rule has worked well, as it certainly has in the case before us. Mr. G. Aitchison, senior, up to the time of his death, was architect to the St. Katharine's Dock Company. His practice was mainly in wharves, warehouses, and offices, and structural alterations on a large scale, and he built the road stations on the London and Birmingham Railway. In his younger days he was very intimate with Donaldson, who may be called the Father of the Institute, with T. H. Wyatt, who acted under him during the building of the Docks, and he reckoned amongst his friends Sir Charles Barry and Professor Cockerell. All these, and especially the two former, took great interest in

OUR PRESIDENT AS A BOY.

Thus he was bred in an architectural atmosphere. His regular education began at the Merchant Taylors' School, where he remained until his sixteenth year, when he was articled to his father, and during his pupilage attended the science and art classes at Somerset House, where the late Mr. Herbert, R.A., was then master. In 1847 he became a student of the Royal Academy, and after the completion of his articles took the degree of B.A. at the University of London, in 1851, whilst continuing his architectural training in his father's office. In January, 1853, he travelled through France, and thence to Genoa, Leghorn, and Pisa, and arrived in Rome just before the Holy Week, visiting with keen interest the most important buildings. From Rome he travelled

BY LAND TO NAPLES,

and thence to Amalfi, Salerno, and Paestum. Returning to Rome, he made valuable friendships with the artists assembled there in that year, 1853—viz., G. H. Mason, the idyllic painter, by whom he was introduced to two future presidents of the Royal Academy, Leighton and Sir Edward Poynter; and he also met Waterhouse and W. Burges. Leaving Rome after the Holy Week of 1854, he travelled in company with Burges to Arezzo, Perugia, and Assisi, where they stayed some weeks, making notes and sketches of the important fresco decorations of Cimabue and Giotto in the church of San Francisco. Thence they went to Florence, where they stayed several months, making notes and taking sketches and measurements of some of the palaces and other monuments; then continued their studies at Siena, Pisa, Lucca, and Pistoja. As the cholera was raging they could not then visit any places further north in Italy, but proceeded *via* Leghorn to Marseilles, and visited Lyons, Beaune, Dijon, and Troyes together, where they sketched and measured ruins. The two friends then separated, and Aitchison met his parents at Paris, and with

them returned to Italy, visiting Milan, Venice, Padua, Ravenna, Faenza, Bologna, Ferrara, and Verona, and then, by way of Switzerland, Strasburg, and Paris, returned to London in the summer of 1855. He then became his father's head clerk, and was taken into partnership with him in 1859. During this partnership he saw a great deal of

WORK OF AN ENGINEERING CHARACTER

on the Chester and Holyhead Railway. In June, 1861, his father died, and he began practice on his own account, becoming architect to the St. Katharine's Dock Company, after the amalgamation of the St. Katharine's with the London and Victoria Dock Company. He was engaged chiefly on large massive works—wharves, warehouses, and suites of offices—but was enabled occasionally to introduce architecturally designed fronts and staircases. The tobacco warehouse and offices and other warehouses for the Victoria Docks had a frontage of 500ft., by 170ft. in depth, costing £65,000. Messrs. Hubbuck's warehouse on the Thames has some architectural character. Having thus laid the sound foundation of constructive execution, as indicated above, we find him, in 1865, emerging into genuine and finished Architecture by the building of Lord Leighton's house, to which the glasshouse, the Arab hall, and picture gallery were subsequently added; and he also designed the ornamental furniture of the house, thus making it a complete work, not less admirable for

ITS ARCHITECTURAL FORM AND FITNESS

than for its masterly decoration, as an example of what may be done in permanent colour. The decoration is not of an evanescent character, being mainly of marble, mosaic, and tiles, the ancient tiles being Saracenic. The same is the character of other works by our president, as, for instance, Berkeley Square; No. 1, South Audley Street; 9, Chesterfield Gardens; 52, Prince's Gate; and 1, Grosvenor Avenue, where the structural wood is carved or inlaid with ivory, mother of pearl, and lapis lazuli. In 1869, through a chance recommendation given by Leighton, he altered and decorated the hall and staircase at 44, Belgrave Square for the Hon. Percy Wyndham, for which paintings in combination were made by Leighton; and this led to his being employed in much decorative work—viz., for her Royal Highness the Princess Louise at Kensington Palace, for the Duke of Montrose, Lord Leconfield, Sir W. Lawson, Sir S. Waterlow, Mr. Eustace Smith, M.P., Mr. John Aird, M.P., Mr. J. H. Renton, and a great many others. In 1868 he built the new Board room for the Thames Conservancy, designing also the furniture, whilst Leighton modelled the frieze of the Board room. In 1871 he altered and enlarged the house of Mr. F. Leyman, M.P., 15, Berkeley Square, and designed the furniture. In 1884, a house for Mr. J. Stewart Hodgson, which had been left unfinished by the death of his friend F. P. Cockerell, was put into his hands to complete. This implied the design of the whole of the

INTERIOR WORK AND DECORATIONS.

For the same owner he also made large additions to his house at Lythe Hill, designed the fittings, and decorated the rooms with colour and bronze. In 1877-78 he rebuilt Founders' Hall, and in 1886 the Royal Exchange Assurance Offices in Pall Mall, and in 1892 decorated in colour the Livery Hall of the Goldsmiths' Company. The works above enumerated are only a small part of the list that could be mentioned. He designed the decorations for the British Art Section at the Paris Exhibition of 1878, and was elected one of the officers of Public Instruction in Paris. He has been elected a member of the Société Centrale of the French architects, and also of that of Belgium, is a foreign Associate of the Royal Academy of Belgium, and has received numerous medals from our own colonial associations in recognition of his claims as an architect. In 1881 he was elected Associate of the Royal Academy, and in that position gave occasional lectures, but, after being chosen Professor of Architecture in 1887,

he has given his lectures annually. To his architectural he has added much good literary work, besides the lectures already referred to. He wrote the "Science and Art Syllabus" on the Principles of Ornament. He edited Ward's "Principles of Ornament" in 1892, and four years later added an Appendix on the Orders. In fact, he not only edited but practically rewrote the whole work. He is a contributor to the "National Biographical Dictionary," and one of the Examiners in the Science and Art Department at South Kensington. Although the claim for nomination to the Royal Gold Medal is not in the least confined to members of this Institute, and has been so considered by the Council on various occasions, it is nevertheless a source of great satisfaction to find one so worthy to receive it amongst our own body, and one who has so continually assisted our pursuits. Elected thirty-six years ago, our Gold Medallist of this year has assisted frequently in the Council, was Vice-President for four years reckoning from 1889, has contributed various Papers of great interest, has been an Examiner in the Voluntary Examinations, and has worthily maintained since 1896 the

HONOURABLE BUT NOT UNONEROUS

post of President. I wish to conclude with a few remarks on the Royal Academy Professorial lectures before closing this short summary of our President's claims to this distinction. No one can have read these valuable lectures, without feeling that they are calculated to encourage the architectural students who heard them, as well as those who have followed them as readers, to keep before their eyes a high ideal of Architecture as an Art, based on sound construction, technical knowledge, and true principles of design as its essential aim; and that whilst archaeological considerations are not to be ignored, they should never be allowed to dictate or force the hand of the architect into lines inconsistent with the former more important principles, and that it is only on such lines that architecture can flourish as a living Art. I am not aware that anyone has urged these views, which appear to me to be perfectly sound, so persistently and so well as our president, whom, with, I am sure, your approval, I shall now proceed to invest with Her Majesty's gracious gift.—Mr. Aitchison acknowledged the honour in a speech which we shall publish in our next issue, remarking that he considered there had been conferred on him, as an architect, the greatest honour England could bestow.

THE newly-elected Hackney Vestry has rejected the proposal to hand over the electric lighting order for the district to a limited company. There is now only one Moderate on the electric lighting committee, and it is anticipated that this committee will shortly bring up a scheme for electric lighting under the direct control of the ratepayers.

THE new brooms brought into existence by the Local Government Act are, it must be admitted, beginning to operate with praiseworthy energy in sanitary matters. The chief difficulty they have to surmount is that which has just presented itself to the Carnarvon District Council. Within the extensive area under its supervision there are numbers of cottages pronounced by its medical officer to be "wholly unfit for human habitation." Almost every village contains some specimens, and the result is that the health of the whole district suffers. It would be easy, of course, to apply a rough and ready remedy by destroying all such dwellings; the Council could do so at once. But houses are very scarce in the locality, and the dispossessed tenants would, therefore, either crowd into cottages already fully occupied or have to migrate, thus losing their employment. It has been decided, therefore, to allow them to continue in occupation pending the result of applying coercion to the landlords to execute the required sanitary repairs. But that will necessarily take a considerable time, and, in the meanwhile, these unfortunate villagers will have to accept the risk of living in houses "unfit for habitation."

THE LIFE-WORK OF WILLIAM MORRIS.*

By F. S. ELLIS.

THOUGH but six years have gone by, it seems but yesterday since I made one of a large audience which listened with earnest attention and eager interest to an address, on the subject of "The Woodcuts of Gothic Books," by the great man concerning whose wonderful artistic and literary career I have undertaken to speak according to the best of my ability. But I believe I am justified in calling his career not only wonderful, but also in applying to it the often misused term unique, for casting back one's eye over the glorious roll of English poets, which among them, I would ask you, besides William Morris has been so gifted, as not only to enrich the world with

A FULL TIDE OF SONG,

but also to make the age in which he lived an epoch in decorative art? Little did I suppose, as I listened to his well chosen words on the occasion I have mentioned, that it would ever fall to my lot to speak of him as belonging to the past, for he was four years my junior, and, until his last illness attacked him, seemed always possessed of so much life, vigour, and activity as might be expected to carry him to extreme old age. Alas! that it is otherwise, for his value in the world was far greater than that of a whole heap of other men, including myself. No one who has eyes to see, intelligence to understand, and wit to judge, can doubt that in the loss of William Morris we have reason to mourn

A GENIUS OF SUCH MAGNITUDE

as towered aloft even among the men of marked ability, brilliant faculties, and great attainments, who were contemporary with him, like a landmark in a wide plain. His death has left a blank that none of us can reasonably hope to see filled in our time. But though he was my junior in the mere reckoning of years, from the first day that I made his acquaintance I recognised clearly in how great a degree he was my senior in intellectual capacity and acquired knowledge. For more than thirty years I was accustomed to regard him as a teacher and a master, and you must, therefore, not expect from me anything by way of

CRITICISM ON HIS LIFE-WORK

other than hearty appreciation, admiration, love, and wonder. Yet it must not be supposed that he was one of those who desire to exact from their associates entire agreement on all subjects, or who thrust their views and opinions, whether upon Art or other matters, dogmatically upon their neighbours: he was, on the contrary, always most willing to listen to objections, to explain, and to consider a question from various points of view, unless he found his interlocutor to degenerate into ignorant nonsense or self-conceit, when he would close the discussion quickly enough. In thinking over his marvellous personality, I should not, though his versatility was wonderful, be inclined to describe him as a versatile man, for that term is usually applied to one who can do a great many things fairly well, but for the most part imperfectly. That was not the case with William Morris. Many things he assuredly could do, but he never rested till he was fully master of that which he undertook, and could do it thoroughly well—I will not say perfectly, for he would himself have counted the word "perfection" inadmissible in Art; as Ruskin has admirably and forcibly pointed out, "perfection usually means a loss of strength and degeneration into littleness," and a phrase that was constantly on Morris's lips was that, according to the French proverb,

"BETTER IS THE ENEMY OF GOOD."

But he was a many-sided man; to work at whatever he set his hand to till he was so entirely master of the subject that he was able

in instruct others; to know the history, the secrets, and why and wherefore of everything he engaged in, was his great characteristic. Yet those who knew him best will bear me out when I say that never was any man more entirely free from petty conceit and self-consequence. Though fully conscious of his own power and inherent ability; though, I believe, gratified to feel assured that he was looked up to by his fellows as a man of genius; he was, nevertheless, one of the most simple-minded, yea, one of the

MOST HUMBLE-MINDED, AMONG MEN.

His consciousness of power and knowledge in such things as he gave his mind to, raised him above the pettiness of conceit; while his clear conception of the limitations of his own, and of all human knowledge, engendered in him that humility which is a special note of truly great minds. It was my good fortune to make the acquaintance of William Morris as long ago as 1864, when "Jason" was as yet unpublished, and he was unknown in literature and Art beyond a narrow circle of friends. One of his grand qualities was faithfulness. I believe I may say with confidence that throughout his whole career he never lost a friend, except by the hand of death. The friends of his youth were the friends of his maturity; alas! that it cannot be said of his old age, for he was but sixty-two when he died, and no one ever thought of

MORRIS AS AN OLD MAN.

Even when the stroke of sickness fell upon him, and until within a few weeks of his death, his mind was as fresh and vigorous, his touch as certain, his fecundity of invention as wonderful, and his imagination not only as brilliant as in youth, but infinitely more so, growing brighter, richer, and more varied and powerful as the years rolled on, and until the end was reached. It is needless for me to recite any particulars concerning the biography of William Morris. They have been given, pretty much as I could relate them, in many of the magazines and newspapers during the last eighteen months, and in Mr. Aymer Vallance's important and excellent work, entitled, "The Art of William Morris." For a full and exhaustive biography, we may look forward to the book promised by Mr. Mackail in the course of next year, with confident anticipation that it will be well worthy its subject. Suffice it to say, that William Morris was born on the 24th of March, 1834, the eldest son of a man engaged in financial business in the City of London, who, by the accident of a fortunate investment, made a short time before he was cut off in the very prime of life, left his widow in such circumstances as enabled her to give all her children a handsome fortune as they came of age. This was certainly a circumstance as happy as it was remarkable, in that it opened possibilities to the future artist of carrying into effect

HIS VIEWS ON ART

at an early age, which might otherwise have been seriously retarded, or even never have had the opportunity of expansion and fulfilment. That the surroundings of the boy and youth were by no means calculated to awaken a love of Art will be readily understood and allowed by all who are conversant with what was in vogue in prosperous middle-class life during the first half of the present century. But it would seem that a love of the beautiful, and a sense of what was ugly, abhorrent, and vulgar was intuitive in William Morris's mind. I remember him speaking many a time of the Exhibition of 1851, at which all the world was struck with unbounded admiration, and telling how, as a youth of seventeen, he declined to see anything more wonderful in it than that it was "wonderfully ugly," and, sitting himself down on a seat, steadily refused to go over the building with the rest of his family.

AT MARLBOROUGH COLLEGE,

which he always spoke of with the greatest dislike and repugnance, he would not join in the ordinary games or sports, but found delight in rambling over the country-side on holidays, exploring its archæology and enjoying the scenery. His walks about the Wiltshire downs

he used to talk of enthusiastically to the end of his days. I have also heard him describe how, in the shorter intervals of leisure, he would employ himself in making nets, a token of the spirit of the handicraftsman which afterwards found such ample and glorious development. His abhorrence of Marlborough arose largely from the recollection that his teachers there taught him nothing whatever, so that one of the aptest scholars that ever lived had to be put under a coach before he was equal to matriculating at Oxford. It is needless to make more than a passing remark on a circumstance which had assuredly a most important effect upon his life-work. I refer to the extraordinary fact of his life-long friend, Sir Edward Burne-Jones, matriculating on the same day, and shortly afterwards forming his acquaintance. Nor is it necessary to enquire into the causes that led both these students to

RENOUNCE THE CLERICAL CAREER

that had been marked out for them. An inspiration fell on these youths, each of them coming from family and surroundings as little likely to prompt them to Art or poetry as were those of Chaucer, of Shakespeare, of Turner, or of Ruskin, but the wind bloweth where it listeth. The influence of Ruskin with the promoters of the Oxford Union caused Dante Gabriel Rossetti to obtain a commission at Oxford, and here was the flame at which the ready match of enthusiasm was kindled. The Oxford of forty or fifty years since was a place much more calculated to foster and encourage

THE SPIRIT OF MEDIEVALISM,

which was an integral part of Morris's nature, than it is under its present aspect. The whole spot wore a much more venerable and antiquarian air than it does at the present time. In his later years, Morris would earnestly deplore the ruthless spirit of change which had robbed Oxford of the charm it once had for him, and it was with difficulty he could be persuaded to go thither, even though his residence at Kelmscott brought him so close upon its borders. He used to speak with enthusiasm of the delight he experienced as an undergraduate in turning over some of the magnificent manuscripts preserved in the Bodleian, especially the "Romance of Alexander," and a thirteenth century "Apocalypse." I think it may fairly be said that the lifework of William Morris, as given to the world, began

IN HIS STUDENT DAYS

with the founding of the Oxford and Cambridge Magazine. From the way he mentions this publication, I infer that Mr. Vallance was unaware that Morris bore the sole cost of its production. Under such circumstances it is remarkable that it should have lasted through a year. I should think its doing so was due only to Morris's hatred of anything incomplete. The twelve months rounded it off, so to speak. Mr. Vallance mentions, as though it were a fact, that Morris kept a copy of this book under lock and key by reason of the great store he set upon it, a statement that must be due to some misunderstanding, for he certainly set no store whatever by the volume, and kept nothing under lock and key, even his watch key was usually astray. The same writer discusses the question of reprinting such articles as Morris wrote for the magazine. Of that I can only say that I should regard it as a ghoulis proceeding, and a

DISHONOUR TO THE AUTHOR'S MEMORY,

who again and again forbade their reproduction. I am happy in thinking that there are yet some years before anyone dare reprint these articles without permission, and before that time arrives I shall, in all likelihood, be beyond the knowledge of such matters. Having emancipated himself from the prospect of a clerical career, what could be more natural than that he should look to the practice of Architecture as a profession, and with that idea article himself to the man who was in those days looked upon as an oracle in that branch of art? But a year's experience in Mr. Street's office, and the clearer perception of what Architecture should be, more especially that

*A paper read before the Applied Art Section of the Society of Arts in May last.

Gothic Architecture, to the love of which his soul was wedded, caused him to see the impossibility, under present conditions, of attaining to and

CARRYING OUT HIS IDEAS,

and he therefore sacrificed the remaining term of his articles, and turned his attention to other matters. That he might with success have followed the profession of a painter is demonstrated by the excellent portrait of his wife painted before his marriage in 1859, which has come to light during the past year, after being for a long period supposed to be lost altogether. But I believe he felt that as a painter he would be overshadowed by the surpassing genius of his most intimate friend: his own saying was that he could not make his figures move. That he did not persevere in his studies in that direction was assuredly a great gain to the world at large, for, whatever distinction he might have gained as a painter and a poet, it is obviously impossible that he could in that case have achieved the great work as a handicraftsman and designer for which all those who have any eye for beauty are so largely in his debt. The year 1858 is marked as an important one in his life by the publication of

HIS FIRST VOLUME OF POEMS.

It is no wonder, seeing how entirely original was the note struck by Morris, that the book was not very heartily received by the public. It would have been a marvel had it been otherwise. It was offered to several publishers, and among others to Mr. J. W. Parker, proprietor of Fraser's Magazine, a person considerably esteemed in those days, as I well remember, for a man of taste and a fine critic. He declined to publish the volume, and after it appeared, had—as appears from a letter which has lately come to light—no better idea of the value of the verse than that “nineteen-twentieths of it was the most obscure, watery, mystical, affected stuff possible.” The genuine and earnest mediævalism of the author was altogether lost on Mr. Parker. That the volume was not an immediate success is not, as I have said, to be wondered at, for no book that is out of harmony with the spirit of the age can be expected to succeed until interest in the movement of it is awakened. Two young men, who in their maturity are still among us (Dr. Garnett and Mr. Joseph Knight), raised their voices, through the press,

IN APPRECIATION OF THE NEW SINGER;

but that the volume had not a very rapid sale was evidenced by the fact that some seven years later I bought from Messrs. Bell and Daldy the copies that then remained unsold, amounting, if I remember rightly, to some thirty or forty. But that the “Defence of Guinevere” met with no greater appreciation on its first appearance is, I think, easily accounted for, for unless the reader has some knowledge of the “Romance of King Arthur,” and the “Chronicles of Froissart,” and, indeed, of the mediæval spirit generally, it must be mere affectation to pretend to understand and enjoy the poems in Morris's first publication; as well might an Oriental, who had never heard of London, affect to enjoy the humours of “Pickwick.” A good deal has been said about printing other poems written about the same date, which the author preferred to leave unpublished. I am happy in knowing that the one person whose authority would be needed for the publication of them has decided against it, and will, I trust, make such provision as shall prevent them being put into print at any future period. He was too capable a critic of his own work for there to be any justification for publishing that which he desired

TO CONSIGN TO OBLIVION.

Architecture and painting abandoned as the occupations of his life, Morris's practical mind addressed itself to the task of showing that it was possible, while perforce shutting one's eyes to the exterior hideousness of ordinary houses, to do something towards making the interior more tasteful and beautiful than they had been for many a long year—reversing, in fact, the old saying concerning the cup and the platter. The house designed for him by

his lifelong friend, Mr. Philip Webb, was, perhaps, if we except some attempts in the pseudo-Gothic style, the first in the England of the nineteenth century to be arranged and decorated in a departure from the

HIDEOUSNESS OF DEAL DOORS

painted and grained to look like oak or maple, staircases covered with mustard-coloured paper, and squared in blocks to imitate some sort of marble that never existed, hangings usually of a dull heavy rep, and, in the wealthier houses, stuffs equally ugly, if more costly, varied in summer by preposterous sham lace, black horsehair chairs, ponderous yellow mahogany sideboards, and flock wall-papers. Those who are old enough to remember what it was all like, will, I think, bear me out, when I say that though our dwellings of to-day may not all of them be models of good taste, they are certainly better than they were in what we may call the age of anti-macassars and Berlin woolwork. It was at this time that Morris set himself to understand the method of ancient needlework and embroidery. To make himself completely master of how it was done, he obtained some pieces of ancient work, carefully took them to pieces, thread by thread, and thus made himself completely master of the mode of construction, and then fell to

DESIGNING PATTERNS AND FIGURES,

and worked the first piece with his own hands. The result was a series of noble needlework figures, for panels in the Upton House. I well remember with what surprise and delight it was that I first beheld these pieces of handicraft at Queen Square, and what a revelation on the possibilities of modern needlework it was to me. It seemed to carry one back to another world. The series, as originally designed, was never completed; four of the panels are now, I believe, in the possession of the Earl of Carlisle, and four or five others are preserved elsewhere. It speaks volumes for the vigour and hopefulness of the man that he ventured to set forth, so to speak single-handed, on the task of awakening people to a sense of hideousness that surrounded them, and the possibility of something more artistic and beautiful; for although he associated himself with other men of genius and ability, from whom he received most valuable aid and support, it was, in truth,

THE REMNANT OF HIS FORTUNE

that furnished the means of beginning the work which he and his friends undertook. How he threw himself earnestly into the project is witnessed by the fact that he left his pleasant house at Upton, and came to live in the smoke of central London, that he might give himself wholly to it. It is needless for me to go into the history of the establishment of the firm of Morris, Marshall, Faulkner and Co., which in outline is an oft-told tale, and which will doubtless be given at full in the forthcoming biography. As he has told us himself, in his lecture, entitled, “Making the best of it,” delivered before the Trades Guild of Learning, at Birmingham, in 1880, it was useless to suppose that any quick and sudden change could be made for the bettering of the

OUTWARD FORMS OF THE HOUSES,

which most of us, by no choice of our own, are compelled to inhabit, and the only thing to do, therefore, was to provide the means of making the interior surroundings more or less beautiful, by wholesome and pleasing decoration of the walls to begin with, and then by designing tasteful stuffs for curtains and hangings, and furniture less cumbersome and unsightly, both in form and material, than was commonly procurable at that period. Both wall-papers and textile fabrics were at first very simple, but not the less admirable therefore; but of later years they grew, in many instances, to be more rich and costly according to the demand that arose for them. How thoroughly Morris understood his aims and his work is manifest in every line of his invaluable lectures, entitled,

“HOPES AND FEARS FOR ART.”

delivered at Birmingham, London, and Nottingham, between 1878 and 1881. What can be more to the purpose than these words on

wall decoration? “Every line must have a distinct idea in it; some beautiful piece of nature must have pressed itself on our notice so forcibly that we are quite full of it, and can, by submitting ourselves to the rules of Art, express our pleasure to others, and give them some of the keen delight that we ourselves have felt. If we cannot do this in some measure, our paper design will not be worth much; it will be but a makeshift expedient for covering a wall with something or other, and if we really care about Art we shall not put up with something or other, but shall choose honest whitewash instead, on which sun and shadow play so pleasantly, if only our room be well planned and well shaped, and look kindly on us.” How completely do these words reveal to us the

REAL SECRET OF MORRIS'S SUCCESS

as a designer, namely, the perfect grasp that he had of his subject, and the spirit of love and enjoyment with which he bent to his work, so that it was a real pleasure to him, destitute of toil and pain. Morris's designs for wall-papers amounted to fifty entirely distinct patterns, which are worked in no less than 237 different colourings, every one of them arranged and directed by himself with that marvellous and unerring instinct for harmony of colour, which was one of his most wonderful gifts, and one of his most remarkable characteristics. So great is the difference made by the interchange of colours that the same pattern, to any but an expert and practised eye, would appear to be altogether distinct. This is no mere opinion of my own, but a fact that is proved by every-day experience. Then he produced forty-two

DESIGNS FOR PRINTED COTTONS

in 159 variations of colour, 39 designs for woven materials set out in 164 colourings, and a very large number of elaborate patterns for carpets and rugs of different textures, sizes, and varying methods of manufacture. In the Birmingham lecture, from which I have already quoted, the author is at the pains to give most valuable hints for the arrangement and decoration of a house, which are well worth the study of all who desire to make the interior decent, whatever the exterior may be, for which, in truth, usually the occupant is only accountable. One part of the exterior he does make useful suggestions for, namely, the setting out of the garden, wherein assuredly as much taste may be shown as in the decoration of the house, and it is moreover much more easy of execution and less costly, for once set going in the right way, it will in a great measure care for itself, and richly repay the attention bestowed upon it. I do not hesitate to say that but for the life work of William Morris, the

AMELIORATION OF COMMONPLACE UGLINESS,

which may be traced in thousands of houses, would never have come about, but things must inevitably have gone from bad to worse. No doubt a large part of the world persists, and will persist, in preferring ugliness to beauty—so much the worse for it. Sir W. B. Richmond, in his eloquent address to the students of the Royal Academy, has well said: “The fine arts are a necessity to a small public; the handicraftsman is a necessity to all: both are desirable, one is essential.” I think one might gloss this saying by the remark that the handicraftsman of taste and judgment ought to be especially considered necessary to the possessor of works of pictorial fine-art, for what I would ask you is more discordant or distressing to the eye, I might say, indeed, what is more ludicrous than to behold grand pictures hung in a room or gallery hideous in colour, amid

OSTENTATIOUS BUT TASTELESS SURROUNDINGS?

If there was one part of his Art work that Morris looked back upon with less satisfaction than another in his later years, I believe it was the earnest effort he made to revive the once glorious art of glass painting. It is a subject so great, and so difficult that it might have occupied the whole attention of even his genius and yet have remained unmastered. I have often talked with him about it. It may not be a lost art, but it is most certainly a dead art, we have its corpse but not its spirit. That is as dead as are the men themselves

who carried it to perfection. As well might we attempt to speak the language of those men. It is gone, never to return. Phonologists can tell us what sort of sound a thirteenth century Englishman made when he spoke, and we have before us the very words he would use, but if the most accomplished phonologist tried to imitate the pronunciation of our ancestors, I believe that nothing better than

UNINTELLIGIBLE GIBBERISH

would be the result, and so it is, that though we may arrive at all the methods of the twelfth and thirteenth century glass painters, no nineteenth century man can infuse into it the spirit which gave to it the inexpressible beauty which such glass as the great east window of Wells Cathedral is endued with. Of later years, Morris declined to be any longer a party to the practice of putting new wine into old bottles, or in other words, new glass into old Gothic traceries, which certainly savours strongly of the worst form of restoration. He had the advantage over all other practitioners in the art of working from the designs of artists of genius, which in itself gives his work a special value, while his fine appreciation of colour caused him to effect a reform in that direction which before his day was greatly needed; but I believe he was painfully aware of the monstrous incongruity of a

DOZEN OR MORE STYLES OF GLASS

being put into one building. The absurdity is hardly less, and the irritation to the spectator would be scarcely greater, if a dozen different architects were commissioned to design the body of a church, employing styles varying from the Byzantine of the seventh century to the Renaissance of Inigo Jones, in its various parts and divisions, the whole being mere imitative work—a Norman choir, a Byzantine nave, south transept early English, north transept Renaissance, and so on. Yet that is what is commonly done with stained glass. What think you would have been the effect of the Kelmscott Press Chaucer had it been illustrated by a dozen different artists, in as many different styles?

(To be continued.)

MESSRS. CHRISTIE, MANSON, AND WOODS have just concluded the five days' sale of the extensive collection of Chinese and Japanese porcelain, carvings in jade, rock crystal, and ivory, and other Oriental objects of art formed by the late Sir Rutherford Alcock, during his many years' residence in China and Japan. The collection included the following:—Chinese carvings in jade.—A pair of boxes and covers, of pale-green jade, formed as figures of quails, 40 guineas; a dark-green vase, shaped as a conventional carp, 6½ in. high, £38; a large dark-green cylindrical vase, with rocks, plants, and dragons, boldly carved and pierced, £22; and a large flat-shaped bowl, dark-green, on four small feet, carved with a cloud ornament, 115 guineas; a pear-shaped vase, with open lip, of splashed *sang de bœuf* and duff, 17 in. high, 50 guineas. Chinese enamelled porcelain.—A large globular vase, brilliantly enamelled with peonies, chrysanthemums, and other flowers, rocks, quails, and insects, circa 1740, 21 in. high, 100 guineas; a *famille rose* vase, decorated round the body with six characters, variously ornamented in prunus, fir, and bamboo, 14 in. high, 40 guineas; and a square-shaped vase and cover, and a pair of quatrefoil-shaped vases, *en suite*, finely enamelled with sunk circular panels of the twelve spirits of the flowers, the centre vase 13 in. high, the others 10½ in. high, 260 guineas. Chinese cloisonné enamel.—A pair of square-shaped vases, with circular necks and feet, decorated with panels of rocky lake scenes, &c., 15½ in. high, presented by Prince Kung to Sir Rutherford Alcock, £82; a circular, flat-shaped pilgrim bottle, decorated on either side with sprays of peonies, lotos, also birds and rocks in colours, 21½ in. high, 48 guineas; a rare flat-shaped, *sang-de-bœuf* bowl, on three monster feet, raised ridges round the border, with bosses, 14½ in., 97 guineas; and a *famille verte* deep dish, enamelled in the centre with the five-clawed dragon grasping the sacred jewel, 9 in. diameter, 51 guineas.

Professional Items.

ABERDEEN.—The Plans Committee of the Town Council has sanctioned the following plans of new buildings:—Two dwelling-houses on the west side of Walker Road, at its junction with Grampian Place; additions to offices at Provost Blaikie's Quay; shed on the east side of the South Esplanade, for Mr. Alexander Winchester, builder; three dwelling-houses on the north side of Church Street, Woodside; four dwelling-houses on the west side of Walker Road, for Mr. John McGregor, builder, per Mr. William Beattie, architect; addition to dwelling-house on the south side of Great Northern Road, for Mr. Alexander Catto, builder; additions and alterations in connection with dwelling-houses on the west side of Forest Road, per Messrs. Brown and Watt, architects; two dwelling-houses on the north side of Fonthill Road, per Messrs. Harper and Sutherland, architects; alterations in connection with the Lorne Hotel, Trinity Street, per Mr. William Ruxton, architect; dwelling-house and net store on the south side of Wood Street, (Torry), per Mr. Alexander Wallace, builder; two dwelling-houses on the south side of Sunnybank Place, for Mr. Joseph Shirras, builder; offices and stores on the north side of Balmoral Terrace, per Mr. John Cameron, builder; four dwelling-houses on east side of Holburn Street.

ATTERCLIFFE.—A new school-chapel in Stanforth Road has just been opened. The school-chapel, which will accommodate 220 persons, has been erected to a neat design, and sufficient land adjoining has been acquired to permit of a properly equipped chapel being built at some future date. Mr. William Aspland, Handsworth, was the contractor, the architects being Messrs. James and John Hardcastle, Woodhouse.

BEESTON.—A new Roman Catholic Church, dedicated to St. Peter, at Beeston has been opened. The building is from the designs of Messrs. Hart, of Corby. The structure is of red brick, with stone dressings, and is in the Early English style of Architecture. The contractors were Messrs. Turner, of Beeston.

BRIDLINGTON.—The foundation stone of the new Bridlington Grammar School was laid a few days ago. The style of Architecture is the scholastic type of the English Renaissance. The structure will be of red brick, with stone dressings and red tiled roofs. The hall very properly occupies the centre. This is 51 ft. 6 in. long by 30 ft. wide, rising through the height of the two stories. It has an opened timbered roof, and is surmounted by a turret. On the west and south sides of the hall are four class rooms, which will afford accommodation for a hundred boys. On the north side space is left for additional rooms, which will be provided when funds permit. The buildings have been designed by Messrs. Botterill, Son, and Bilson, architects, of Hull, and the erection will be carried out by Messrs. John Thompson and Co., of Peterboro', at a cost of over £8500. Mr. W. H. Williams is the clerk of works.

BURNHAM OVERY.—The Church of St. Clement could not fail to attract the attention of even the ordinary traveller, owing to its unique construction, having the tower (one-belled) between the nave and the chancel. In consequence of a considerable amount of dilapidation it was deemed necessary to close it about eight months ago, and commence a work of renovation and restoration, which has been so far carried out by Mr. F. Norman, of Burnham Westgate, as contractor, and Mr. Herbert Green, of Norwich, as architect. The re-opening of the edifice took place a few days ago.

ECCLESFIELD.—The opening of the new chapel which the Wesleyans of Ecclesfield have erected was recently performed. The chapel is cruciform in plan, having a gallery round three sides, and at the eastern end a large organ and choir gallery. At the west end is a spacious vestibule entered by large

folding doors, and giving access to inner lobbies, from which the chapel is entered, and to stone staircases leading to the gallery, which is also approached by two staircases at the western end. The style adopted is the Renaissance. The building is faced with Dunford Bridge stone, with cornices and other relief in dressed ashlar. In the centre of the main front is a large entrance doorway with carved stone arch, cornice, and balustrade. Above is a large mullioned window in three lights, and over this is a moulded arch enclosing a richly carved tympanum. On either side is a boldly projecting pilaster, relieved with carving, and finished with an enriched cornice and balustrade. The western staircases project from the main building with semi-circular ends, filled in with mullioned windows, and finished with an enriched cornice and balustrade. The nave and transepts are lighted by mullioned and arched two-light windows. Mr. H. W. Lockwood (Sheffield) was the architect, and Messrs. Mastin and Son (Sheffield) the builders.

GLASGOW.—The corner-stone of the new Episcopal church and halls which are in the course of erection in Baltic Street, Bridgeton, Glasgow, was laid recently. The new church is built in the late Gothic style of Architecture, and consists of a nave with a chancel and a south aisle. A mourning chapel adjoins the chancel, and a mortuary chapel for the use of all denominations in the district is at the south-west corner of the site. As to the halls, the large one will accommodate between 300 and 400 persons, and there is also a smaller one. The total cost of the structures is estimated at £4000.

HEREFORD.—Mr. Bond, the lecturer at the architectural classes held at the Free Library, Hereford, during the past season reports as follows: "There was again a large and regular attendance both at the lecture and at the class, and on the average twelve papers per week were worked for the lecturer. Owing to the fact that continuous work has been done by the Students' Association during the preceding autumn, the students were all prepared to receive the advanced instruction given in the recent course of lectures, and work of solid and permanent value has been done which, I feel sure, will be to very many of the students a source of life-long satisfaction and enjoyment. In many cases, too, the result of these two courses of lectures has been not merely the acquaintance of a considerable amount of technical knowledge, but very marked increase in thinking power and in literary style." The examiner's report was as follows:—"The papers throughout show considerable merit, and the best excellent work. In some there is a tendency to write on one side or a little outside of the question. In a few, on the other hand, there is rather too much stringiness, savouring of cram, but neither of these faults is very common. The drawing is fair, and occasionally good."

INVERNESS.—The beautiful and, in one respect, unique chapel which has been gifted to the Northern Infirmary at Inverness has been opened. The nave, which is 44 ft. in length by 18 ft. in width, is intended for all forms of Christian worship. On the north side of the nave an altar for the use of the priests of the Roman communion is placed in a transept, which is separated from the nave by a wrought-iron gate and crimson hangings, and the altar of the Anglican communion is similarly placed on the opposite side of the nave. The whole interior of the edifice is lavishly furnished, and a dedicatory inscription is chiselled over the doorway. The building is designed in late pointed Gothic, the architects being Messrs. Ross and Macbeth, Inverness. The total cost is over £3000.

KELSO.—At a meeting of Kelso Police Commissioners a formal resolution was adopted to the effect that the Commissioners acquire the Town Hall and site by feu charter, and repair, alter, and fit up the same as a public hall, court-room, and burgh offices, Messrs. Swanston

and Legge, architects, Kirkcaldy and Burntisland, having been entrusted to carry out the work.

MORECAMBE.—Designs have been submitted for an important addition to Morecambe's places of amusement. The scheme is for a massive tower of an entirely novel and ingenious design, somewhat resembling an Eastern temple. An eligible site has been secured in Calton lodge and grounds, which have an extensive frontage to the promenade between the Central Pier and Emmanuel Church. On a portion of this estate it is proposed to erect a tower 232ft. in height and 130ft. diameter at the base. The tower in general form will be a cone gradually diminishing in diameter, and having four floors above the ground level. The first of these floors will be 70ft. above the ground, the second 102ft., the third 132ft., and the fourth 157ft., with a turret reaching to a total height of 232ft. A road track, with an electric railway under it, will wind round outside of the eight principal pillars in spiral form. The structural steelwork of the tower is calculated to support a strain of 1000 tons on every portion accessible to the public, in addition to its own weight, and a wind stress of 56lb. to the square foot over its whole surface. The weight of the constructive steel work of the tower is estimated at about 862 tons. The design throughout is Oriental in character, and picturesque in appearance. The designer and patentee is Mr. Tom Bradley, architect and surveyor, Bingley. Messrs. W. H. and K. Sugden, of Keighley, are the architects of the structure.

PLYMOUTH.—The first portion, consisting of entrance and a room capable of holding some 200 people, which will eventually form a portion of the west end of the new church at Cattedown, is almost complete. A very handsome west entrance has been built from the designs of Messrs. Weblin and De Boinville, of Plymouth, and Mr. A. H. Trevenen has completed the sculpture of the scene on Calvary on the tympanum over the doorway. If the church when complete is worthy of the doorway, it will be an edifice which will take a high place among public buildings in Plymouth.

SOUTHWOLD.—The old bridge near the railway station is being superseded by a modern structure. The new bridge, the plans of which have been prepared by Mr. Henry Miller, County Surveyor, will have brick abutments and retaining walls, and the superstructure will be formed of steel trough girders from Messrs. Dorman, Long, and Co., of Middlesbrough. The parapets over the span will be of wrought iron lattice work. Brick piers will be erected at each end of the bridge, the Southwold end of which is to be lighted. The approaches will be fenced with cast iron standards and wrought iron rails. Mr. Miller, in having the bridge erected to the east of the present one, has effected a desirable improvement, as the present one is quite out of the line of the road.

WORMIT.—Plans have been prepared by Messrs. James MacLaren and Sons, architects, Dundee, for a new church at Wormit. The building is to be erected in the grounds of the present Free Church Mission Hall, and the hall will be used for congregational purposes. The new church will accommodate about 500 persons, and is to cost £2700, exclusive of the site.

YORK.—A new church is to be built at Bishopthorpe, near York, on an excellent site in the centre of the parish given by the Ecclesiastical Commissioners. Mr. Hodgson Fowler, of Durham, has prepared plans of a building which, when completed, will consist of nave and clerestory, south and north aisles, chancel and clerestory, south chapel, organ chamber, sacristy, and vestry. At the west end will be a tower of three stages rising to a height of 64ft. The general style of Architecture adopted is the late fourteenth century Gothic. The total cost of the building will be £6600, and accommodation will be provided for 320 worshippers. The builders are Messrs. Bowman and Sons, Stamford, and Mr. T. A. Bolton, of York, is clerk of the works.

Under Discussion.

MASTER BUILDERS' AND WORKMENS' COMPENSATION.

The Three Towns Master Builders' Association, at a recent meeting held at Devonport, was largely engaged in discussing the question of insurance against accident under the Workmen's Compensation Act. Various points arising requiring further information, it was decided to adjourn the subject for another meeting, to be called immediately on receipt of replies to inquiries and legal bearing of certain clauses in the forms of policy, and also the rates of other offices not directly under consideration, the members of the Association being fully alive to the great importance of being well secured under policy at the lowest possible rate of premium.

THE SOCIETY OF ENGINEERS.

An interesting visit was made by a party of the members of the Society of Engineers to the works of the Gas Light and Coke Company at Fulham and the gigantic wheel at the Earl's Court Exhibition. Among those present were Mr. W. Worby Beaumont, president; Mr. H. Adams, past president; Mr. J. Patten Barber, Mr. J. Bernays, Mr. G. Burt, Mr. D. B. Butler, Mr. Percy Griffith, Mr. R. St. George Moore, Mr. M. Wilson, members of council; and Mr. G. A. Pryce Cuxson, secretary.

NEWLY-ELECTED OFFICERS AND COUNCILS.

THE BRISTOL SOCIETY.—President, Mr. W. L. Bernard, F.R.I.B.A.; vice-presidents, Messrs. W. V. Gough and Joseph Wood; hon. sec. and treasurer, Mr. H. Dare Bryan; hon. librarian, Mr. R. C. James, A.R.I.B.A.; council, Messrs. F. Bligh Bond, F.R.I.B.A., W. S. Skinner, J. H. LaTrobe, F.R.I.B.A., G. H. Oatley, F. W. Wills, J. F. Wood, A.R.I.B.A.; auditors, Messrs. Thos. Nicholson and T. H. Weston, A.R.I.B.A.

THE DEVON AND EXETER SOCIETY.—President, Mr. James Crocker, F.R.I.B.A.; vice-president, Mr. Henry George Luff, A.R.I.B.A.; council, Messrs. Arnold Thorne, F.R.I.B.A., Charles King, George Soudon Bridgman, C. J. Tait, A.R.I.B.A., S. Dobell, James Jerman, F.R.I.B.A., B. Priestley Shires, A.R.I.B.A.; hon. treasurer, Mr. Octavius Ralling; hon. secretary, Mr. Harbottle Reed; ex-officio member of council, Mr. James Hine, F.R.I.B.A., past president.

THE LIVERPOOL SOCIETY.—President, Mr. W. E. Willink, A.R.I.B.A., M.A.; vice-presidents, Messrs. W. Owen, F.R.I.B.A., and J. Woolfall; joint secretaries, Professor F. M. Simpson and Arnold Thornely, A.R.I.B.A.; hon. treasurer, Mr. James Dod; hon. librarian, Mr. J. W. Blakey, A.R.I.B.A.; members of council, Messrs. C. J. Anderson, H. L. Backwith, J. W. Blakey, A.R.I.B.A., T. E. Eccles, A.R.I.B.A.; Henry Hartley, F.R.I.B.A.; William Owen, F.R.I.B.A.; J. Woolfall, F. E. Pearce Edwards, A.R.I.B.A., and E. P. Hinde, A.R.I.B.A.

THE YORK SOCIETY.—President, Mr. George Benson, A.R.I.B.A.; vice-presidents, Messrs. C. H. Channon and J. T. Pegge; hon. treasurer, Mr. William Hepper; hon. secretary, Mr. A. B. Burleigh; hon. librarian, Mr. S. G. Highmoor; committee, Messrs. J. Ferguson, A. Hirst, T. Monkman, A. J. Penty, and E. A. Pollard.

THE GLASGOW ASSOCIATION.

The annual business meeting of the Glasgow Architectural Association was held in the Rooms, 187, Pitt Street, on Tuesday, June 7, 1898, the president, Mr. W. T. Conner, A.R.I.B.A., in the chair. The secretary read the annual report, including the statements of the treasurer and librarian, which showed the association to be in a flourishing condition. During the session nineteen new members were admitted, making an increase in the roll over last year. The syllabus comprised nine members' papers and four lectures, over and above which there were four exhibitions of drawings and photographs. There have been three prizes offered for competition, of the

respective values of £10 10s., £5 5s., and £2 2s., the first being for a design and the other two for measured work and sketches. The treasurer's account shows a most satisfactory balance of £41 3s. 6d. on the credit side, and the librarian's statement enumerates valuable additions by purchase and donation. The following were elected to hold office during the coming session:—President, Mr. P. S. Hill, A.R.I.B.A.; vice-presidents, Messrs. John Fairweather, A.R.I.B.A., and C. E. Whitehead; hon. secretaries, Messrs. R. J. Walker and Alex. Wingate; hon. treasurer, Mr. W. P. Tucker; hon. librarian, Mr. Hugh Dale; general committee, Messrs. James Lochead, A.R.I.B.A., William Vickers, W. J. Blain, Thomas Ramsay.

ARCHAEOLOGICAL EXCURSION.

About twenty members and friends attended the first excursion of the season of the Birmingham Archaeological Society, which was to Shustoke and Nether Whitacre. At Shustoke the church was first visited. The next halt was made at Bott's Green House. This half-timbered mansion-house bears the crest of the Digby's very prominently, and has many features of external interest. In the interior a carved stone chimney-piece and a panelled room are the chief objects of note. Nether Whitacre Hall, which was next visited, also proclaimed itself by the very prominent fleur-de-lis a seat of the Digbys. The house has been much modernised, but the ancient moat remains practically intact, and is in the highest degree picturesque. There are remains of three towers covering the bridges, and in one case the remains are considerable. The old gateway opening upon the principal entrance is a very quaint half-timbered structure. The church of Nether Whitacre possesses an ancient tower, projecting from which are several most curious gargoyles. The interior possesses no object of any interest except the monument to the last direct heir of the famous Jennens property. The tablet records many benefactions, among which is one for the rebuilding of the church.

DISTRICT SURVEYOR'S ASSOCIATION DINNER.

The District Surveyors of London dined together at the Café Royal Restaurant on Tuesday, the 14th inst. The chair was taken by Mr. Horace Gundry, F.R.I.B.A., the president, and he was supported by the members of the Tribune of Appeal, Mr. Arthur Catis, Mr. A. A. Hudson, and Mr. J. W. Penfold, two members of the L.C.C., Mr. R. A. Robinson and Mr. H. A. Harben, while Parliament was represented by Sir George Fardell, M.P. Other visitors were Mr. J. Hobb, Mr. G. W. Thomas and Mr. J. W. Godfrey, who attended with their chief, Mr. Thomas Blashill, superintendent architect, and Mr. B. Hayward. The R.I.B.A. was represented by Mr. W. Emerson, hon. secretary, and the law by Mr. T. Wheeler, Q.C., and Mr. A. Collins, and Mr. J. Andrews was the guest of the vice-president. The following district surveyors were present:—Messrs. B. Tabern, V.P., H. H. Collins, C. F. Hayward, F. Waller, G. Elkington, A. W. Tanner, E. Marsland, W. H. Lees, R. P. Nottey, Alex. Payne, A. Conder, Walter Spiers, H. Chester, H. W. Stock, Henry Lovegrove, A. Williams, George McDowell, E. Calritt, and A. Crow. The usual toasts were honoured, and the musical arrangements were under the direction of Mr. G. F. Smith, of Brixton. The toast of "The Houses of Parliament" was proposed by the president, and responded to by Sir George Fardell, M.P.; "The London County Council" by Mr. C. Foster Hayward, responded to by Messrs. Harben and Robinson; "The District Surveyors' Association" by Mr. A. A. Hudson, responded to by Mr. H. Gundry, president; "The Tribunal of Appeal" by Mr. H. H. Collins, responded to by Mr. H. Catis; "The Officers of the County Council" by Mr. T. W. Wheeler, Q.C., responded to by Mr. T. Blashill; "The Vice-President and Officers" by Mr. G. Elkington, responded to by Mr. Tabern; "The Visitors" by Mr. H. Lovegrove responded to by Mr. W. Emerson.

Views and Reviews.

GUIDE TO KEW GARDENS.

In the illustrated guide, to the Royal Gardens at Kew, just issued by Messrs. Dawbarn and Ward, Limited, no attempt is made to lure one to the botanical beauties for which Kew is famous. The average visitor regards an afternoon in Kew Gardens in very much the same light as he would an afternoon in the Bois de Boulogne; he regales his pleasure-loving instincts to the full, but looks to botany, as a science, no more in the one instance than he would in the other. The average visitor to Kew wants a guide-book which will tell him about the most notable objects in the Royal Gardens without troubling too much about the scientific "steeps" of botany. The present work, edited by Mrs. S. Goldney, aims at filling this need. The interest as well as usefulness of the book are promoted by the series of excellent photographs of the many striking objects and delightful nooks with which the gardens abound. The authoress takes the reader by the hand, and entering the Victoria Gate, embarks on a thorough tour of the gardens, explaining her course and the beauty passed on either hand, and retelling the history of the buildings dotted throughout the domain. A short historical sketch of Kew completes Mrs. Goldney's guide.

Illustrated Guide to the Royal Gardens, Kew. Edited by Mrs. S. Goldney. 1s. London: Dawbarn and Ward, 6, Farringdon Avenue, E.C.

BELL'S CATHEDRAL SERIES.

It is pleasant to be able to congratulate the editors of Bell's Cathedral Series on the appearance of three more of their charming little volumes. Norwich, Peterborough, and Hereford, are the cathedrals selected, and they have ample justice done to them by Mr. C. H. B. Quennell, the Rev. W. D. Sweeting, and Mr. A. Hugh Fisher, respectively. The value of this series has been generally recognised by the Press, and there is little to be added to what has already been said. There is no doubt that these guide-books would prove most valuable to any architectural student visiting the cathedrals for the purpose of study. They seem to be compiled with great care and accuracy, with perhaps an occasional slip, such as where the tower of Hereford Cathedral is described as "Decorated," and the date of its erection given as 1200-1215. Judging from the illustrations, and speaking from personal memory, this tower is certainly not decorated, and its date more probably 1300-1315. The illustrations to these books are perfect; they consist of photographs, sketches, drawings, reproductions of old prints, and a general plan. The photographs—particularly the interiors—are of a very high class of work, and the sketches are mostly vigorous and simple, and serve to illustrate features which could not be so easily photographed. If the whole of this series is kept up to the present high level, the undertaking will reflect the greatest credit on all concerned. A. R. J.

Bell's Cathedral Series. Edited by Gleason White and Edward F. Strange. London: George Bell & Sons, 1898.

The Royal Commission are now prepared to circulate information respecting the Paris Exhibition of 1900. The classification and rules for exhibitors, together with forms of application for space, can be obtained by applying to the Secretary of the Royal Commission, Paris Exhibition 1900, St. Stephen's House, Westminster, S.W.

The inauguration of the Hull electric tramway scheme took place recently, when the first rails were formally laid. The cost of the work will be over a quarter of a million. Powers to borrow £270,000 for the trams and £100,000 for the pavement have been obtained. It is intended to place a double line of rails throughout the greater portion of the system, and there will be altogether about nine miles of double tracks, with about half a mile only of single lines where the width of the streets does not admit of the double ones.

Enquiry Department.

SLATES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Enclosed I beg to send you two samples of slates, the one marked with a + from the Whitland Abbey Green Slate Quarry and the other, marked M, from a quarry near the first. Would you kindly give me your opinion with regard to their durability, and also liability to breakage, compared with good North Wales slates? A reply in the next number of the Builders' Journal would oblige. —I am, yours, &c., R. W.

Both samples appear good, hard, compact slates, and would, we think, prove durable. The one marked with the cross would probably weather best, and be less liable to breakage than the other, and both compare favourably with average North Wales slate; but not being so fine grained as Festiniog or Bangor selected, they would not "hole" or "edge" or "plerry" so cleanly as these.

SCHOOL PLANNING.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you please inform me the names and prices of any books on school planning (in accordance with the requirements of the Education Department), and oblige, Yours faithfully,

June 1, 1898.

"SCHOOL."

Mr. Robson's book, published in 1874, is the only work on schools likely to meet your requirements—indeed, the only important work with which we are familiar. It is now out of print and scarce, but Mr. B. T. Batsford, of 94, High Holborn, W.C., could supply you with a copy at 18s. 6d., post free. There is a work on "School Architecture" by Palliser, Palliser, and Co., of New York, but this would not assist you with regard to our Education Department. It contains hundreds of plans, elevations, details, &c. Mr. Batsford has a copy at 4s. 6d.

R.I.B.A. EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I have before received kind information from you, and would like to ask your opinion re the following:—In the subject for "Design," in R.I.B.A. Final Testimonies of Study, I am thinking of taking up a school, say, "Higher Grade School." What accommodation would be required—rooms, &c. I understand the Board of Examiners attach great value to the testimonies sent up. My measured drawings are well on the way. The sheet on roof truss strains I cannot master. What text-book would you recommend? The sheet of constructive masonry, I suppose, may be re-drawn from some authority? Peter Nicholson's work. Thanking you in anticipation.—Faithfully yours, M. G. R.

P.S.—Having very little spare time, I fear I shall require assistance perhaps for three or six months before examination, having to sit June next. Do you think weekly correspondence for three months from a coach would be advantageous?

It is true that the Board of Examiners of the R.I.B.A. attach considerable importance to the "Testimonies of Study" in their final examination, and that poor composition or careless or imperfect execution will disqualify the applicant from admission to the examination itself; but the examination is meant as a test of all-round general knowledge, and not of special technical knowledge, and it is quite unnecessary to take such a special subject for design as a "higher grade school." The board desires a building of moderate dimensions, such as a villa, parsonage, local institute, cottage hospital (a simple cottage has been proved in fact sufficient); but, whatever the design is, it must be drawn out in proper working drawings, figured, with all particulars, and with the necessary details, as though prepared for the direction of the contractor. If you possess the working drawings of a design which has been actually carried out, they will serve your purpose excellently. It is not intended by the Board

of Examiners that the construction drawings should be copied. In the oral part of the examination the examinee is specially questioned upon the subject of his Testimonies of Study. As text-books on the subject of roof truss strains, B. N. Stoney's "Theory of Strains," Spore's "Handbook," and "Notes on Building Construction" (Rivington), may be recommended, with T. Timmins' "Examples of Iron Roofs," and for stone work Rivington's notes above mentioned, and E. Wall's treatise on Building and Ornamental Stones will be of service. The assistance of a coach (by correspondence or otherwise) would be of great assistance in directing the most advantageous course of study. You should get the R.I.B.A. Kalendar, wherein particulars of examination, with advice, list of text-books suggested by the board, and sample papers from previous examinations are set forth.

TENDERS.

ASHTON-UNDER-LYNE.—For alterations and extensions to the Railway Hotel, Guide Bridge. Mr. J. H. Burton, architect, 2, Guide-lane, Hooley Hill:—
James Ridyard ... £117 0 | Wellerman Bros. ... £110 10
Edwin Marshall ... 115 0 | * Accepted.

AUDENSHAW.—For flagging a portion of Denton-road, for the Audenshaw District Council. Mr. J. H. Burton, surveyor, 2, Guide-lane, Hooley Hill:—
Jas. Farrell ... £86 4 11 | Worthington and H. Kinder ... 61 12 2 | Powall ... £38 3 1
* Accepted.

[Surveyor's estimate, £63 16 2.]
AMBLE.—For New Mead Memorial School at Amble (Northumberland), for the National School Managers. Mr. J. Wight Douglas, architect, Alnwick. Quantities by architect:—
A. Douglas ... £2,018 0 | Carrs & Son, Amble, Acklington ... £1,936 3
* Accepted.

Several separate tenders for the various trades were also accepted.
BANGOR.—For erecting five houses in Farrer-road, Bangor, for Mr. W. Farrer Roberts. Mr. Richard Hall, architect, Bangor. Quantities by the architect:—
R. & J. Williams £4,745 0 0 | J. Hamilton and Watkin Jones £3,895 0 0
Robert Williams 3,940 4 4 | Jones & Williams 3,870 0 0
Evan Williams ... 3,805 16 9 | William Parry, Bangor ... 3,786 16 0
* Accepted subject to modification.

BASLOW (Derbyshire).—Accepted for the erection of a residence, for Mr. E. M. Wrench. Mr. E. Morewood Longdon, architect, Bakewell. Quantities by architect:—
T. Allsop and Son, Bakewell ... £1,450

BLYTH (Northumberland).—For the erection of business premises, York and Regents-streets, for the Central Industrial and Provident Co-operative Society, Limited. Mr. A. A. Windle, architect, 10, Waterloo-road, Blyth:—
D. Weightman ... £4,643 6 8 | J. Goulding and R. J. Harbottle ... 4,171 0 0 | Sons ... £3,368 0 0
H. Bower ... 3,868 2 1 | B. Baxter ... 3,296 0 0
W. How, jun. ... 3,568 0 0 | Barron & Temple, J. & W. Simpson 3,515 10 0 | Waterloo, Blyth ... 3,156 9 3
* Accepted.

BROADSTAIRS.—Accepted for building fourteen houses in Gladstone-road, Broadstairs, in two blocks of six and eight each. Mr. A. J. Sheffield, architect, 35, Eastcheap, E.C.:—
T. Hurley (at £350 each house) ... £4,900

CAERPHILLY.—For the erection of sixteen houses, Aber. for the Panteg Building Club. Messrs. Griffiths and Jones, architects, Tonypandy and Llandaff:—
J. Bowen ... £3,130 | J. P. Williams, Leng. D. Evans and Son ... 2,928 | henith, nr. Caerphilly *£2,761
G. H. Leonard ... 2,928 | J. Lewis ... 2,736
* Accepted.

CROYDON.—For erecting three shop premises, on the site of Nos. 104 and 106, High-street. Mr. A. Broad, architect, 23, George-street, Croydon. Quantities by the architect:—
S. Hart ... £3,700 | E. J. Saunders ... £4,000
J. Smith and Sons ... 3,679 | W. Smith and Son ... 3,487
F. W. Sedgwick ... 3,613 | A. Bullock ... 3,484
S. Page ... 3,588 | W. Pearson and Co. ... 3,360
E. P. Bulled and Co. ... 3,500 | D. W. Barker ... 3,323
* Accepted.

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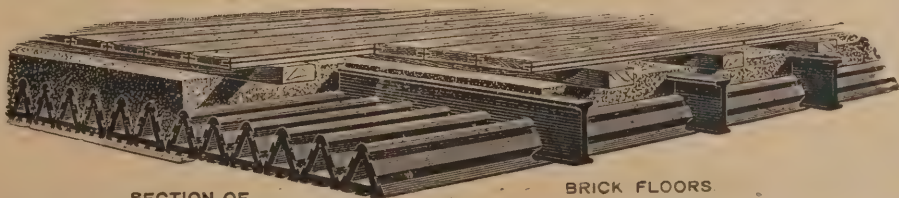
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PUBLIC WORKS IN AUSTRALIA.

A VIGOROUSLY progressive policy of public works has been carried out in New South Wales of late years. The various works are carried out and maintained by the Public Works Department, which has a most efficient staff of engineers stationed in various parts of the country, who are controlled and directed from the administrative office in Sydney. The mileage of roads at present, directly or indirectly, under the charge of the Department, that is exclusive of the roads in towns under municipal control, is 38,951, of which 12,123 miles are simply bush tracks, and 26,758 miles are cleared, formed, or metalled roads. There are 2772 bridges in the colony, having a total length of nearly 50 miles, and 31,073 culverts or small bridges, with a total length of over 87 miles. The roads as main highways for traffic from Sydney have, to a great extent, been superseded by the railways, but for a large portion of the colony they are still the sole means of communication, and as feeders to the railway system they play a very important part. In the interior a vast amount of work has been done in providing branch roads to the main arteries; roads between townships, and for access to the railway system; and routes for stock purposes.

THE BLESSING OF TIMBER.

On many of these latter, in the dry parts of the far interior, a large sum has been expended in providing tanks and wells for supplying water to travelling stock, and during the past few years artesian bores have been put down for the same purpose in some of the driest regions with signal success. Owing to the nature of the soil, and the absence of suitable stone, the cost of road construction in not a few of the inland districts is exceedingly high, so much so that where there is any large amount of traffic it is found absolutely cheaper to construct light railways, which, in some instances, has been done, and will no doubt be continued on a much more extensive scale in future years. The bridges are constructed in a very substantial manner, timber being used wherever possible. The colony is fortunate in having an almost unlimited supply of hardwood eminently suitable for bridge work and structures of a like character. The ironbark which is mostly used for the purpose has a tensile strength of about one-third that of wrought-iron, while its durability may be gauged from the fact that some

BRIDGES FIFTY YEARS OLD

are still carrying traffic, while numbers of others, totally unprotected from the weather, have been built over thirty years. The operations of the Department include railway and tramway construction, improvement of harbours and rivers, bridges and road construction, repair and renewal, construction of public buildings, water conservation and irrigation, sewerage construction, &c. Among the larger undertakings of the Department is the Sydney sewerage system, which, in its present complete form, is of comparatively recent date, the works having been only commenced in 1880. Briefly described, the works consist of a main northern outfall sewer which collects the sewerage of the portion of Sydney and suburbs which naturally drains into Port Jackson, and discharges into the Pacific Ocean at a point about five miles to the south of Sydney Heads. The sewerage of the southern district is collected into a separate system, and conveyed to a sewerage farm on the shores of Botany Bay. The scheme also comprises a system for the western suburbs, which also discharges on to the sewerage farm at Botany. In addition to the extensive reticulation works in connection with the main scheme, numerous stormwater drains have been constructed where foul and insanitary creeks formerly existed. The amount expended on these works up to June 30, 1896, was £1,920,008, including a small expenditure on country sewerage. The effect which the construction of the sewers has had upon the health of Sydney has been most marked.

A Great Welsh Industry.

BY A SPECIAL CORRESPONDENT.

TOURISTS know all about the Vale of Llangollen—as a resort for a summer holiday. But it may be questioned whether many of them know that nearly at the foot of the Vale are to be found the biggest terracotta and tile works in the country. So it is. The other day when I arrived at the little station of Trevor, a mile or two from the better known Ruabon on the Great Western main line, it was not as a tourist, but as an inquirer that I had come. By special favour I was to be shown over the works of Mr. J. C. Edwards, and I was full of curiosity as to what was to be seen there. Led by Mr. Lloyd Edwards himself I was in no sort of danger of missing any feature of interest, and the very first item was a surprise. The first shed was not by any means like a tile works or works of any kind where anything softer than iron is to be dealt with. It was, in fact, neither more nor less than an engineer's shop, and I found that all the machinery is repaired and kept in order by the staff here at the works. And not only so, but much of it is actually made by the engineers on the staff. So that evidently the works are to a very great extent independent of the outside world for the rectification of the thousand and one little accidents that are always sure to happen where machinery of a complicated character is in use. The actual work of

TILE AND TERRA-COTTA MAKING

is, perhaps, the oldest industry on the face of the earth. And yet there are methods devised and substances introduced from time to time that are ever improving the manufacture and reducing the cost of production till the trade bids fair to be as essentially modern as any that is the outcome of nineteenth century life, and demanded by the growing luxuriousness of our civilisation. To take one example. I saw a tile with the unmistakable lustre of burnt copper upon it. This was produced for the fireplace of a realist who wanted an imitation of a very old Spanish process. Then, after asking Mr. Edwards what he thought of the old Romans as tile makers, and realising that they were most excellent workers in clay, it seemed a sudden shock to come out of the shed where we had been talking and imagining that we were in the ancient times, and to see, opposite to us, tiles for the new electric railway in London. But it was real, and very certainly so. Indeed, Mr. Edwards might have had the contract for the whole of the stations on this line, had the works been able to devote themselves entirely to the demands of this company. In one room, of ample dimensions, there was the very interesting operation going on of preparing mosaic for various places where it is to be laid down. The process was to me somewhat of a revelation, as I had hitherto thought that this was always done on the spot where the work had to remain, as was done by the Romans. But I saw it being got ready here at Trevor for London work, but fixed face downwards on papers, so that at the London end it was necessary only to lay the sheets, upon which the design was set, face downwards upon the cement bed, and there it remained for all time. One large shed seemed full of large pigeon-holes; but this was a delusion, for the seeming pigeon-holes were but wooden bins, in which tiles of various shapes and sizes were stored, for despatch where and when wanted. The special "Adamantine" tiles were here in full force. These tiles, 3in. in thickness, are in great demand just now, and the works are turning out tens of thousands of this speciality alone. They are used in the hospitals, post offices, and other buildings where hard wear and tear is expected. Elsewhere there was to be seen a tile that one would imagine has been greatly in demand of late, for it bore upon it the portrait of Mr. Gladstone in relief. These Trevor works are not all. There are

OTHER WORKS IN THE NEIGHBOURHOOD

belonging to the same firm, and a walk across the valley to the other side of the river, and

through the village of Cefn (or, rather, past it, for one scarcely passes through it), leads to the works at which is to be seen the "Clay hole" itself, well worth looking at, especially by those who have never seen one, and who are of a geological turn of mind. The "hole" is neither dark nor dingy, as might be supposed; nor is it cramped for room. It is a huge quarry, in which, at the time of my visit, there were over 100 men at work, and yet they scarcely seemed visible, so vast was the space. In these works there is a most complete system of heating and drying apparatus, the effect of which is to keep the air in each shed at a constant and even temperature throughout the year, independent of the season, a point the value of which is by no means inconsiderable to the manufacturer of tiles and clay work generally. Here, as at Trevor, the goods are at once put on trucks at the works, the railway siding coming right into the heart of the works, and so saving all the cost of carting. How far the Welsh men and lads at these tileries are in love with the beautiful scenery in the midst of which they work I am not aware; but I could not help thinking, as I saw the clouds of smoke that are inseparable from the operation of tile and brick making, that Mr. Ruskin scarcely needed to "go" for the ironworks as the modern curse of the landscape when such an old industry as this can and must give out so much carbon. Yet once away from the immediate neighbourhood of the chimneys, the area of the natural display is so great and the area of the disturbing element so small by comparison that one wonders to think that the smoke is ever abused at all where the disproportion is so marked as it is at Ruabon and the district at the foot of the famous Vale of Llangollen.

A DEEP-SEA pier scheme is now nearing completion at Herne Bay. The old pier, which had been in existence some years, ran out to a distance of only 400ft., and was left at low tide high and dry. This has now been lengthened by the addition of 3320ft., making it the longest pier on the Kentish coast.

MR. W. E. RICKARDS, builder, of City Road, was summoned at Westminster by Mr. Dee, a Westminster sanitary inspector, for failing, after due notice, to provide proper sanitary appliances at a workshop in St. James's Court, Westminster.—Mr. Percy Gates, solicitor to the Westminster Vestry, supported the summons, and stated that the defendant was building large flats at St. James's Court, and though from 100 to 200 workmen were employed, and probably would be for two years, the sanitary arrangements were of the crudest and most outrageous nature—a menace to the health of the public.—Mr. Sheil asked how a building in course of erection could be styled a workshop.—Mr. Gates said there was no definition of a workshop or work-place in the Public Health Act, under which the proceedings were taken, but the definition clause in the Factories and Workshops Act, which would probably be accepted, was quite wide enough to cover a building in course of erection, or even a field where works were in progress.—Mr. Dee, the sanitary inspector, deposed that the shaping of bricks and ironwork in two sheds occupied the attention of a number of workmen.—Mr. Sheil did not think this temporary sort of business made the place a workshop in the ordinary acceptance of the word.—Mr. Gates: The Vestry ask you to hold that it is. The point has been carefully considered, and it would be intolerable if there was no remedy for such a great nuisance and danger to the public.—Mr. Sheil: That is all beside the real question, which is the construction of the Act of Parliament. If the Legislature, with its combined wisdom, does not in the Act define what a workshop is, I am not going to put a strained construction on it. I will adjourn the case for further argument.—The summons was accordingly adjourned, the magistrate telling the defendant it would be cheaper for him to have the necessary work done, as he should grant a special case, which would be pretty expensive before the Superior Court decided it.

Builders' Notes.

THE annual report of the Birmingham Building Trades Federation, just issued, comments on the flourishing condition of the building trades during the past year. The executive state:—"We looked upon 1896 as one of the best years in our memory, but 1897 has even exceeded that."

AN arrangement has been arrived at in London between a deputation from the Devonport Corporation and the promoters of the Plymouth, Devonport, and Stoke Tramways Company respecting the levelling of the steep gradient opposite the Naval Engineering College, Keyham. The terms agreed upon will be embodied in the company's Bill now before Parliament. The alteration is much more costly than was anticipated, the estimated outlay being £5000. It is understood that the raising of the roadway at the foot of the hill will necessitate an alteration of the entrance to Keyham Factory by the north gate.

THE tunnel under the Rock of Gibraltar has recently been completed. It has been constructed by Messrs. Topham, Jones, and Railton, contractors for the new Naval and Commercial Docks at Gibraltar, for the purpose of bringing stone for the breakwaters from the east side of the rock, avoiding the slow and awkward journey round the north front of the rock, which has hitherto been the route in use. The tunnel, which will probably be afterwards used for strategic purposes, is 1100 yards in length, 10ft. wide, and from 8ft. to 14ft. in height. It crosses the rock from west to east, rising on an easy gradient towards the east, and took thirteen months in boring, the greater part being through solid limestone. Compressed air rock drills were used for driving from the west, and in consequence the ventilation and progress were much better than from the east, where hand drills were used. The trucks of debris came out by gravity at the west end, but at the east a hauling engine was fixed for that purpose.

THE case of Pickers v. Lovatt, heard before Mr. Justice Bruce and a special jury in the Queen's Bench Division of the High Court, was a claim for damages for personal injuries suffered by plaintiff whilst employed on a building contract by the defendant, who denied all negligence.—Mr. Henry Lovatt, defendant, said he was a contractor, with headquarters at Wolverhampton, and had been in business forty or fifty years. In erecting permanent scaffolding for public buildings, he preferred to use chains instead of cords. He had used chains for fifteen years now in preference to cords, because he found they were safer for the workmen. He experienced several accidents with ropes, and therefore he adopted chains, although they were more expensive. For some reason or other London workmen did not like them, and when he started the building of the Bexley Heath Asylum for the London County Council he used ropes, but in consequence of several breaking, he went back to chains. On this particular contract—the building of Her Majesty's Theatre—he used nothing but new scaffolding and chains, which were procured from well-known manufacturers at Walsall and Cradley Heath. He did not give any personal superintendence to this work, as he had too much else to do.—Cross-examined by Mr. Ruegg, he said the chains were all examined carefully before they were sent out for use, and the manufacturers, for the sake of their reputation, would not, he thought, send out faulty chains. No men were killed at Bexley Heath, because the buildings were rather low. Chains were far safer if properly used. He was not aware that six chains broke in the building of this theatre, as no report was made to him, but if cords had been used no doubt fifty would have broken. He was most careful with his men, and tried to ensure their safety as far as was possible. There were only three accidents last year out of 4000 or 5000 men at work on

his contracts.—In reply to the Judge, he said, from inspection of the broken link, he could see no indication of a flaw.—Mr. Salter, counsel for the defendant, then addressed the jury for the defence, and submitted that no personal negligence had been proved against Mr. Lovatt. That was the real question in the case, because this action was not brought, as was usual, under the Employers' Liability Act. Therefore the same considerations did not arise as if action had been taken under that Act. The two previous actions which plaintiff had brought under that Act in the County Court against the defendant had both been dismissed, and without offering to pay any of the costs plaintiff had commenced this third and most unusual action, probably thinking he might get a verdict on the question of whether cords or chains ought to be used. That was not the point, however, and the only question was whether Mr. Lovatt had been guilty of personal negligence, which brought about this accident to the plaintiff.—Mr. Ruegg, for the plaintiff, submitted that Mr. Lovatt's system of using chains of this description for scaffolding was unreasonable and unsafe, and therefore he was negligent.—The jury, after considering the matter in private, returned a verdict for the defendant, but expressed the hope that Mr. Lovatt would see his way to make some compensation to the plaintiff.—Counsel said he would communicate that view to Mr. Lovatt, and judgment was entered for the defendant, with costs.

A CORRESPONDENT writes to a contemporary with reference to the North Pier at Tynemouth as follows:—"As no one appears to have touched upon the question of the material used in the construction of the above pier, I venture briefly to give particulars, with a view to comparison, and suggesting that this was the real cause of the structure being practically washed away. Large quantities of ocean-eaten magnesian limestone were deposited by hopper on the bed of the sea, and from time to time lengths of iron cable were lowered, so as to rest upon the said limestone as a binding element. When the deposit came near the surface, large blocks made of cement and the stone in question and moulded into blocks were by divers placed upon it, and after that freestone blocks. Now, with such decomposing material as the magnesian limestone and iron chain, it could only result in the mounds or banks giving way, when the superstructure was bound to do the same. It was absurd to suppose that in using such 'cheap and nasty' material you could possibly have a permanent structure, or even yet one of ordinary life.

"In comparison, let me ask you to consider Dunstanburgh and Bamburgh Castles, or, perhaps, even more to the point, are the Farne Islands pinnacles, where, lying off as I have done, and realising that all the originally-surrounding limestone sedimentary rocks have been disintegrated and washed away, leaving only the intrusive basalt to beat back the ocean surf from a sea whose bed is there full forty fathoms deep, and which it has probably done for millions of ages. It reasonably suggests itself to an enquiring mind to ask the question: Is it possible to get material anything like this to construct a breakwater with? To such a question I would answer: It is. If an additional question be added: Is it practicable? I would again answer: It is; for I may state that it is within my own knowledge that certain basalt can be melted like metal and cast into moulds, although requiring much more care and time in cooling. Stone of this character can be found in the British Islands, and could be got by sea to North Shields—possibly, in fine weather, to Tynemouth Haven. Were a trial made, I would suggest casting into blocks 10ft. by 4ft. by 2ft. 6in., which would weigh about seven tons, a size well suited to form a breakwater starting at the shore end from a point just north of the lighthouse, and placed in a straight line to the pier end. The result would eventually be—after the decomposing magnesian limestone had been entirely washed away, and the basalt blocks added from time to time—a breakwater of really permanent character."

Surveying and Sanitary Notes.

THE House of Commons Committee on Police and Sanitary Regulations, presided over by Sir Stafford Northcote, have just concluded their inquiry respecting the Middlesex County Council Bill. In substance the Committee have granted, with certain modifications, the powers asked for by the County Council, but have refused to pass the clause requiring the canal company to furnish more water for flushing purposes. They have also refused to grant any fresh regulations respecting the Hendon reservoir.

THE contractors for the main drainage works at Dublin, Messrs. H. and J. Martin, are carrying on the work very vigorously. The extensions on the northern side may be said to be practically completed, including the Clontarf section. A difficult portion of the operations was the tunnelling under the Royal Canal and the Tolka, but this, too, has been overcome successfully. Excellent progress is being made with the Kilmainham section, which is well advanced. On the southern side close beside O'Connell Bridge, the drainage works are in active progress eastward, but it is not intended to open the southern line of quays between O'Connell Bridge and Kingsbridge for some time—at least until traffic facilities are reopened for trams, cars, and other vehicles on the north side of the Liffey.

THE Barmouth New Waterworks have been formally opened. These new works are situated among the Merionethshire mountains, and the reservoir contains a storage of 100,000,000 gallons, of which 52,000,000 gallons are for the supply of Barmouth, and will supply a population of 20,000 for 104 days. The works cost nearly £30,000. At a banquet held in connection with the opening ceremony Mr. T. W. Russell, in reply to the toast of "The Local Governing Bodies of the United Kingdom," spoke of the enormous and increasing work of the Local Government Board, and said that since its establishment it had sanctioned the spending upon sanitary work of £162,760,000. Whereas before the establishment of the central authority the expenditure upon sanitary work in the kingdom during ten years was only £2,956,000, the sum spent during the last ten years was £46,000,000.

SOME few years ago the Corporation of London, with a view to testing the asserted monopoly of the New River Company to supply water to the City at a price reckoned on the rateable value of the premises without consideration as to the amount consumed, sank an artesian well in Stoney Lane, Houndsditch, to supply the artisans' dwellings there. The quantity of water raised daily is about 33,000 gallons, or over 10,000,000 gallons a year. Of this quantity about 22,000 gallons a day, or 7,000,000 a year, are used for the purposes of the dwellings, leaving an available daily surplus of 11,000 gallons. The average quantity of water used annually for street watering and washing is 41,000,000 gallons, for which the New River Company charge 9d. per 1000 gallons. The annual cost of pumping the water now supplied to the artisans' dwellings is £180, or about 5½d. per 1000 gallons, while the cost of the well has been £5610. The original charge made by the New River Company for a constant supply to the dwellings was £84 per annum. Thus the Corporation, by its experiment, has not only sunk nearly £6000, but is losing £100 a year in the expense of supplying the water. There is no means, without great additional expense, of utilising the surplus daily supply for washing the streets, and the Corporation has decided not to attempt it.

THE Board of Trade has decided to sanction the overhead trolley system of electric traction on the Blackpool Corporation tramways on the condition that the special regulations which will be made by the Department are strictly complied with.

PARIS ABATTOIRS.*

By R. STEPHEN AYLING, A.R.I.B.A.

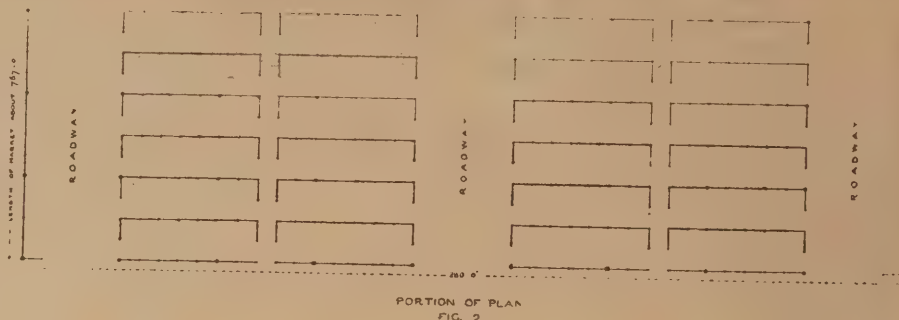
(Continued from page xxxvi.)

THE "Bouveries" (E. and F. Fig. 1) mentioned in the last article, are grouped round large open courts, in which the beasts are kept during the day, and are provided with stone drinking troughs. They are handsome stone structures, two stories in height, the ground floor being used as stables and the upper floor as a store for hay and food for the cattle. We shall illustrate one of the blocks of "Bouveries" on the northern side of the canal in a subsequent article. They are all similar in general arrangement and fittings.

Between these buildings and the fountain is the "Parc de Comptage" (H. Fig. 1) to facilitate the counting of the animals as they enter the markets from the Rue d'Allemagne. This consists of a series of parallel wooden barriers about 4ft. high, with lozenge-shaped enclosures, in which the men who are counting stand.

One-half is reserved for beasts and the other for sheep, who are driven through in single file.

The wooden building I. (Fig. 1) is devoted to the "Service Disinfection," and it is here that all the disinfectants, hose, apparatus, &c., for the cleaning of the markets are kept. This work is very thoroughly done, and a large



portions of which brackets are fixed and above them lattice girders. The central portion of the roof is raised and the upright part between left open, thus allowing cross ventilation. Ventilation is also obtained by the large dormers, which are provided with glass louvres. A central and two side roads run laterally from end to end of the market, with roads of lesser width between the cattle-pens. These latter are formed by cast iron columns 3ft. 3in. high and about 6ft. apart, with two horizontal circular rails connecting them, to the upper of which the animals are tethered. The whole of this market is paved with granite blocks. On market days, when this enormous building is filled with oxen of all kinds, the sight is one not readily forgotten.

result noted by the clerks engaged on this work.

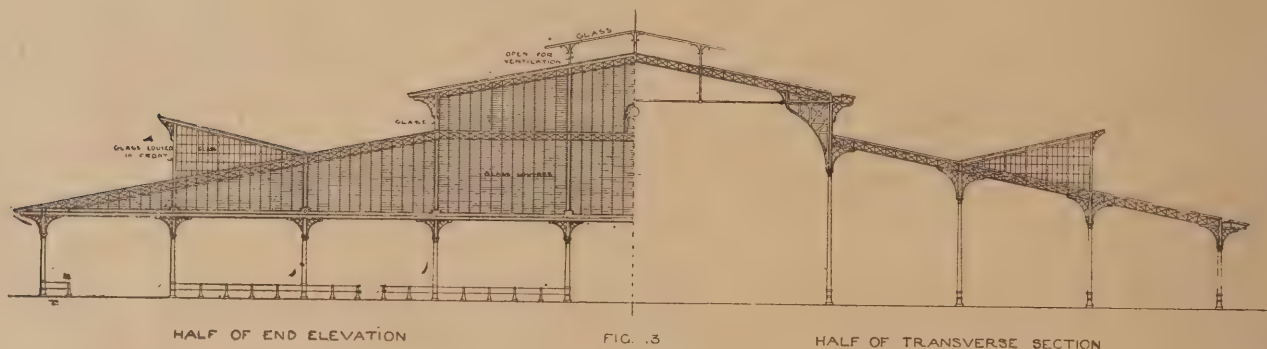
The pens are divided by iron standards 33in. high, with square iron balusters between them.

A small office for the veterinary inspector is provided on the west side.

At the northern end of this market is an additional series of pens for pigs (M. Fig. 1). They are separated by dwarf brick walls with iron railings and gates at either end. Double troughs for food are provided in each division. A detail of this portion is shown on Figs. 6 and 7. In the centre of this block is another weighing place fitted with two tables, and is somewhat similar in plan to those in the pig market.

Beyond these pens is a large "Porcherie"

THE ABATTOIRS & MARKETS OF LA VILLETTE, PARIS, CENTRAL MARKET FOR OXEN.



staff of men are employed in the service. Each afternoon when the sales are over the animals are driven to their stables, and then the whole of the floors, roads, and courtyards are cleansed by means of standing hydrants, and the whole strewn with powdered disinfectants.

Facing the fountain is the magnificent central market J (Fig. 1) for the sale of beasts, and it measures about 280ft. by 767ft., covering an area of nearly five acres. A portion of the plan, one-half elevation and one-half section, are shown on Figs. 2 and 3.

As will be seen from the drawing, the materials employed in the structure are cast and wrought iron and glass. The roof is supported on cast iron columns, on the upper

* This series deals with the construction of the Cattle Markets and Abattoirs of La Villette and La Rive Gauche, Paris.

Beyond the market is a large open space planted with trees, and two restaurants and buffets for the cattle dealers and employees (K. Fig. 1).

Parallel with the central market, on the eastern side, is the smaller market (L. Fig. 1), for the sale of pigs and calves. The size of this building is about 280ft. by 450ft., thus covering an area of nearly three acres. A portion of the plan is shown on Fig. 4 where it will be seen a wide central road runs longitudinally through the centre, with roads of less width on the right and left.

Four places are provided in this market for weighing the cattle, of which a detail is given on Fig. 5. To the extreme left and right are passages, divided by barriers, for the drovers. In the centre are desks and indicators. The animals are driven singly between the barriers and pass over the weighing tables, and the

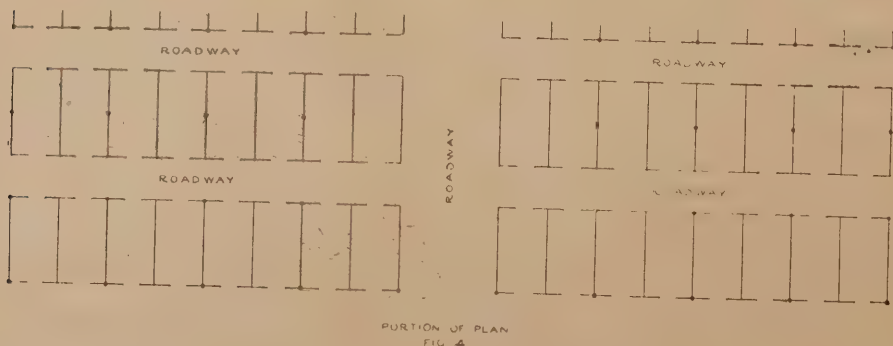
(N. Fig. 1), or stable for pigs. This building is divided into fifty-eight lairs, in which the animals are kept between the times that they are sold and killed.

(To be continued.)

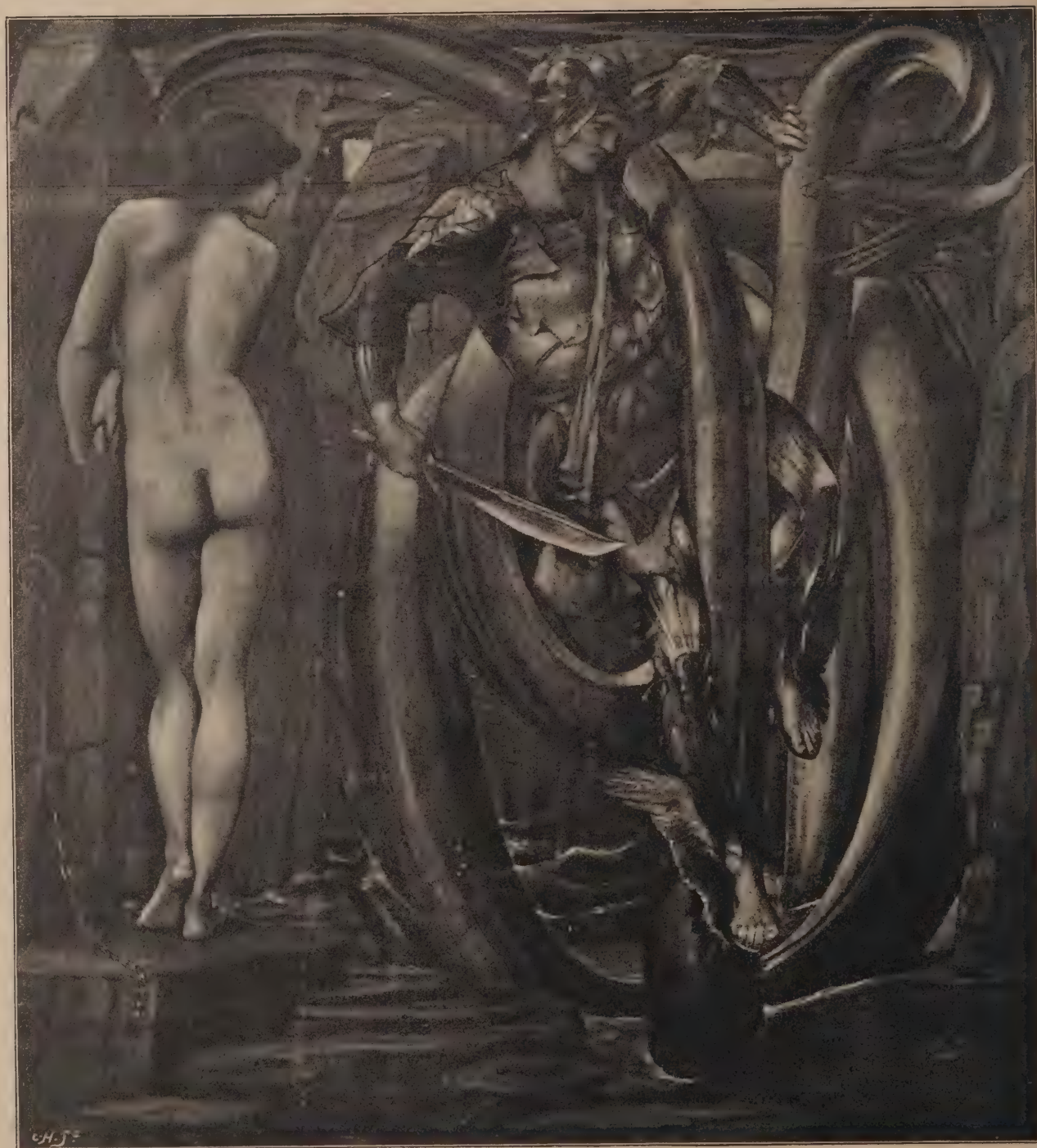
PROFESSOR FLEMING's report on the scheme of the Town Council for the electric lighting of Douglas has been received, and will shortly be issued. His estimate of the cost of the smaller scheme submitted, namely the lighting of the Promenades, Victoria Street to Finch Road, and Duke, Strand, and Castle Streets, is £30,000.

The Leeds Corporation Streets and Sewerage Committee have completed arrangements for the acquisition of properties in Land's Lane, Jack Lane (Hunslet), and Waterloo Road (Hunslet), and notices to treat have been served for the acquisition of property in York Street to give accommodation for the extended tram service. The Committee have decided to hold a sale of surplus lands, acquired in recent street improvements in various parts of the city, at an early date.

At a recent meeting of the Leigh Council a heated discussion took place on the condition of the Leigh sewers, which cost £28,000 a few years ago. Several members said that some of the main sewers were gradually silting up with solid mud through the fall being scarcely perceptible. It was argued that had a deep sewer system with pumping arrangements been adopted instead of the present nearly flat sewers, the cost would have been about £50,000 more. Further discussion was postponed until the Council's surveyor has fully reported upon the condition of all the Leigh sewers.



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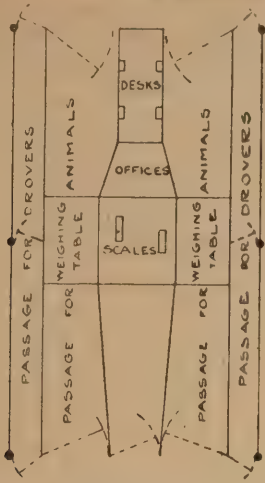


PERSEUS SERIES: "THE DOOM FULFILLED." BY SIR EDWARD BURNE-JONES.



PERSEUS SERIES: PERSEUS AND SEA MAIDENS. BY SIR EDWARD BURNE-JONES.

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WEIGHING APPARATUS IN MARKET
FIG. 5

Trade and Craft.

MESSRS. MARK FAWCETT AND CO.

The constructional steelwork in connection with the recently-opened additions to the University Extension College, Reading, to which we refer elsewhere, has been supplied by Messrs. Mark Fawcett and Co., of 50, Queen Anne's Gate, Westminster, S.W., whose patent system has been adopted in the laying of the floors.

THE HYDRO-INCANDESCENT GAS LIGHT CO.

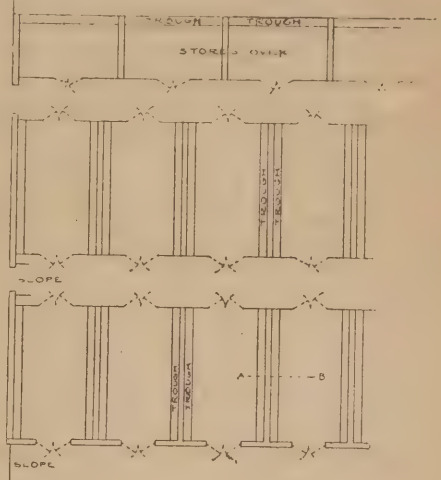
We publish on another page the prospectus of the Hydro-Incandescent Gas Light Co. The object of the undertaking is to acquire the Hydro-Light and a contract with the Welsbach Incandescent Company, whereby the latter undertakes to manufacture and sell the ap-

paratus and to pay over to the Hydro 30 per cent. of the gross profits. The Company is being brought out with a capital of £200,000. The chairman of the board will be Sir William Robinson; the brokers, Messrs. Lumsden and Myers; and the general manager, Mr. Augspurg, late of the Welsbach Company.

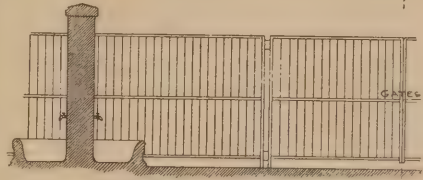
SOME SANITARY SPECIALITIES.

In the new underground lavatory accommodation which has been provided for the city of Leeds in the large square immediately outside the joint railway stations, and to which we recently referred, very considerable difficulties, due to local conditions, have been overcome by the architect in a most satisfactory manner. We notice that the specialities of several firms have been fixed, fireclay lavatory basins being supplied by Messrs. Twyford and Messrs. Adams and Co.; the closets being by Messrs. Twyford and Messrs. Doulton. The many urinals, which form the chief sanitary feature here, are supplied by Messrs. Adams and Co. from their special types, somewhat modified in architectural detail, to accord with the design of the structure itself. The urinal has curved back and sole in one piece of highly glazed ware, with front outlet to drain and dividing pillars; glazed ware-cupping surmounts the backs, and above these are short divisions and backs of glazed ware; black marble floor tiles are used, and the flushing is effected by means of Adams' now well-known automatic syphon tank. These tanks effect great economy in the use of water for flushing purposes, for whilst under the old method a constant flow was allowed, often too small to adequately cleanse the urinals, with these tanks a small feed of water delivered from the Water Company's main gradually fills the tank, and then when full the apparatus delivers its contents instantly and with considerable force to the urinals; thus an intermittent and powerful flush supercedes the continuous and imperfect supply hitherto used, and considerable saving of water results with increased cleanliness of the urinal flushed. The architect is Mr. Bakewell,

from whose design the undertaking was completed. We believe the glazed bricks were manufactured by the Farnley Iron Company. The plumbing work was carried out by Messrs. Slater, of Leeds, whilst Mr. Whiteley was clerk of works.



PENS FOR PIGS AT NORTH END
OF MARKET (SEE BLOCK PLAN M)
FIG. 6



SECTION AB
FIG. 7

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
June 25	Abbotsholme—Additions to School ... ..	...	W. Sugden and Sons.
" 25	Hanwell—Cottage Hospital	Jubilee Committee	District Council Offices, Hanwell.
" 25	Cleator Moor—Masonic Lodge, &c. ... ..	...	E. Jackson, Tangier Buildings, Whitehaven.
" 25	Cwmaman—Erection of Thirty-four Cottages	Cwmaman Cottage Co.	T. Roderick, Clifton-street, Aberdare.
" 25	Nelson—Erection of Refuse Destructor	Health Committee	B. Ball, Borough Engineer.
" 25	New Malden—Erection of Houses ... ..	...	R. Allsebrook Hinds, 36a, Hill-road, Wimbledon.
" 25	Flookburgh—Erection of Cottages ... ..	...	J. Crow, Flookburgh.
" 25	Leeds—Dead Meat Market, &c.	Markets Committee	W. Hanstock, Architect, Branch-road, Batley.
" 25	York—Electric Light Station	Corporation	A. Creer, City Engineer, Guildhall, Yorks.
" 27	Horton, near Epsom—Superstructure of Asylum	London County Council	G. T. Hine, 35, Parliament-street, S.W.
" 27	Knutsford—Erection of Chapel, &c.	Bucklow Union Guardians	R. J. M'Beath, Architect, Birnam House, Sale.
" 27	Lossiemouth, Scotland—Works	Church Committee	J. H. Glennie, Solicitor, Lossiemouth.
" 27	London—Materials and Labour at Cemetery	Corporation Burial Board	The Engineer, Guildhall, E.C.
" 27	Leicester—Hospital	Corporation	Blackwell & Thomson, Halford-chbrs., Halford st., Leicester.
" 27	London, E.C.—Repairing	City of London Electric Lighting Co.	J. C. Bull, 1 and 2, Great Winchester-street.
" 27	Torrisholme—Erection of Cottage	Mullen and Turner	C. F. Thomson, Lancaster.
" 27	Chepstow—Seven Cottages	Oddfellows' Society	J. P. Consterdine, 35, High-street, Chepstow.
" 27	Carnarvon—Chapel ... ..	...	J. H. Williams, Quebec-road, Llanbadarn.
" 27	Cramlington—Ten Houses ... ..	...	J. G. Crone, 50, Grainger-street, Newcastle-on-Tyne.
" 28	Workington—Alterations, &c., to Infirmary	Burial Board	F. W. Jackson, Secretary, Infirmary, Workington.
" 28	Bebbington—Construction of Shed, &c.	Lancashire and Yorkshire Railway	J. C. Ogle, 34a, Hamilton-square, Birkenhead.
" 28	Chorley—Grain Warehouse	Corporation	Engineer, Hunt's Bank, Manchester.
" 28	Bootle—Electric Light Station ... ..	...	J. A. Crowther, Borough Engineer.
" 28	Harrogate—School	Great Western Railway Co.	W. J. Morley, 269, Swan-arcade, Bradford.
" 28	Llanbarran—Station	Corporation	Engineer, Newport Station.
" 28	Neath—Gasworks	Board School	A. Browning, Gasworks, Neath.
" 28	Ruabon—Additions to School, &c. ... ..	...	J. Morison and Son, King-street, Wrexham.
" 28	Bala—Six Houses	Corporation	R. L. Jones, Mount Place, Bala.
" 28	Winchester—Shop, &c.	Befington Burial Board	City Surveyor, Guildhall, Winchester.
" 28	Birkenhead—Work Yard, Shed, &c.	Asylums Committee	J. C. Ogle, 34a, Hamilton-square, Birkenhead.
" 29	Abergavenny—Erection of Wooden Building	Wandsworth and Clapham Union	B. J. Francis, 12, Cross Street, Abergavenny.
" 29	London, S.W.—Nurses' Home at Infirmary ... ..	...	Lansdell and Harrison, 38, Bow-lane, E.C.
" 30	Newark—Alterations to Infirmary, &c. ... ..	...	Shepard and Harrison, Architects, Kirkgate, Newark.
" 30	Addingham, near Carlisle—Church Restoration	Bristol Town Council	G. Dale, Architect, Carlisle.
" 30	Bedminster—Bridge	Gas Committee	J. M. McCornick, Cumberland Basin, Bristol.
" 30	Stratford-upon-Avon—Closets, &c.	Viscount Massereene	R. Dixon, Municipal Offices, Sheep-st., Stratford-upon-Avon.
July 1	Antrim—Villas ... ..	...	W. J. Fennell, 11, Chichester-street, Belfast.
" 1	Corbagh—Lodge	Rural District Council	J. C. Moynan, Corbagh.
" 2	Chester-le-Street—Hospital	Harbour Commissioners	W. F. Jones, 7a, North-lane, Duham.
" 4	Belfast—Electric Light Station	Asylums Committee	G. F. L. Giles, Belfast.
" 4	Horton—Asylum Superstructure	Corporation	G. T. Hine, 35, Parliament-street, S.W.
" 4	Gloucester—Library, &c.	Board School	Waller and Son, 17, College-green, Gloucester.
" 5	West Ham—Cleaving and Repairing Works	Metropolitan Asylums Board	W. Jacques, 2, Fen-court, E.C.
" 6	Tottenham, N.—First Section of Hospital	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 6	London—Section of Hospital	Union	A. and C. Harston, 15, Leadenhall-street, E.C.
" 6	Thingoe ... ..	...	T. D. Atkinson, St. Mary's-passage, Cambridge.
" 11	Cupar Angus, N.B.—Farmhouse	Municipality	Hope and Co., 119, Princes-street, Edinburgh.
" 24	Belem, Para, Brazil—Slaughter-house and Yard, &c.	W. Hancock and Co.	Commercial Department, Foreign Office, S.W.
"	Abersychan—Alterations to Inn	W. H. Priest	Watkins and Brown, Dock-street, Newport.
"	Burnley—Shed	Trustees	H. Smith, 135, Leyland-road, Burnley.
"	Goldthorpe—Erection of Sixteen Houses ... ..	...	J. R. Dodds, 19, Baxter-gate, Doncaster.
"	Gosberton—Redecorating Sunday School ... ..	...	C. Page, Gosberton.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Hurst—Slaughter House, &c. ...	Co-operative Society ...	S. Shirt, Mount Pleasant, Hurst.
"	Keighley—Four Houses. ...	...	J. Haggas, North-street, Keighley.
"	Keighley—Shops, Arcade, &c. ...	...	Judson and Moore, Keighley.
"	Monmouth—Church Restoration ...	Churchwardens ...	St. Mary's Church, Monmouth.
"	Nottingham—Erection of Pavilion ...	Football Club ..	H. Gill, Cobden chambers, Pelham-street, Notts.
"	Oxenhope—Shop, &c. ...	...	J. Haggas, North-street, Keighley.
"	Salford—Drill Hall ...	...	J. Eaton and Sons, Stanford-street, Ashton-under-Lyne.
"	Ulverston—Walls ...	...	J. H. Ellwood, Low Wood House, Ulverston.
"	Essex—House ...	W. Simmons ...	Victoria-chambers, Colchester.
"	Laisterdyke—Warehouse ...	T. Barker ...	5, Bond-street, Bradford.
"	Carlisle—Shops ...	J. Harrison ...	J. Graham, Bank-chambers, Carlisle.
"	Denham—Business Premises ...	Industrial and Prov. Soc. Ltd. ...	Liddle and Brown, Mosley-street, Newcastle-on-Tyne.
"	Leven—Widening Bridge ...	North Biding County Council ...	W. Stead, County Offices, Northallerton.
"	Fallsworth—Extension of Schools ...	...	W. Sugden, Leek, Staffordshire.
"	Torquay—Additions to Farm Buildings ...	...	Rendell and Symons, Newton Abbot.
"	Sedburgh—Rebuilding Bull Hotel ...	L. Chorley ...	J. Hutton, Kendal.
"	Burford—Cottage Hospital ...	Rural District Council ...	T. H. Cheate, Burford.
"	Spilsby—Council Offices ...	J. Coombes and Co. ...	Surveyor, Council's Offices, Spilsby.
"	Lincoln—Factory ...	H. Smith ...	J. H. Cooper, Lincoln.
"	Leeds—House ...	...	C. F. Wilkinson, 35, Park-square, Leeds.
ENGINEERING—			
June 25	Burnley—Construction of Tanks ...	Paper Works Co. ...	Burnley Paper Works Co. Ltd., Burnley.
" 27	Salford—Supply of Fire Engine ...	Corporation ...	Fire Brigade Sub-Committee, Salford.
" 28	Beverley—Construction of Gasholder, &c. ...	Asylums Committee ...	C. W. Hobson, Newbegin, Beverley.
" 28	Cardiff—Construction of Boiler, &c. ...	Corporation ...	Borough Electrical Engineer, Cardiff.
" 28	East London, Cape Colony—Electric Works and Plant. ...	Town Council ...	Dyer and Dyer, 17, Aldermanbury, London, E.C.
" 28	Beckton, N. Woolwich—Construction, &c., of Engines, &c. ...	London County Council ...	Engineer's Department, County Hall, Spring-gardens, S.W.
" 28	Erith, Kent—Converting Engines ...	London County Council ...	Engineer's Department, County Hall, Spring-gardens, S.W.
" 28	Southampton—Construction of Vessel ...	Harbour Board ...	J. G. W. Aldridge, 9, Victoria-street, Westminster.
" 28	London, N.E.—Electric Light ...	Bethnal Green Guardians ...	Giles, Gough, and Trollope, 25, Craven-street, W.C.
" 30	Kent—Re-drainage of Asylum, Water Reservoirs, &c. ...	County Asylums Committee ...	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 30	Penshurst—Six Cottages ...	Rural District Council ...	J. Escombe, Penshurst, Tonbridge.
" 30	Barry—Reservoir ...	Gas and Water Committee ...	E. W. Waite, Gas and Water Offices, Barry.
" 30	Glenarnock—Construction of Storage Tank ...	County Council ...	W. R. Copland, 146, West Regent-street, Glasgow.
July 1	Dublin—Four Engines ...	Great Northern Railway Co. ...	T. Morrison, Amiens-street Terminus, Dublin.
" 2	Eton—Sewers, Tanks, Pumping Station, &c. ...	Urban District Council ...	Bailey, Denton, Son, & Lawford, Palace-chbrs., Westminster.
" 4	Grangemouth, Scotland—Dock Extension ...	Caledonian Railway Co. ...	Sir J. W. Barry, 21, Delahay-street, Westminster.
" 4	Radomir, Bulgaria—Construction of Railway ...	Ministry of Public Works ...	Commercial Department, Foreign Office.
" 4	Edinburgh—Reservoir, &c. ...	District Board of Lunacy ...	J. and A. Leslie and Reed, 72a, George-street, Edinburgh.
" 6	Stockport—Oil Tank, &c. ...	Town Council ...	S. Mennier, Engineer, Stockport.
" 7	Leicester—Supply and Fixing of Grids ...	Gas and Electric Lighting Committee ...	A. Colson, Engineer, Millstone-lane, Leicester.
No date.	Cockermouth—Rebuilding Bridge ...	Rural District Council ...	J. B. Wilson, Cockermouth.
"	Nunthorpe—Sinking Well ...	...	J. Coates, Nunthorpe, B.S.O.
"	Lochfoot—Reservoir ...	Dumfries, &c., Water Commission ...	A. B. Crombie, Dumfries.
IRON AND STEEL—			
June 25	Lacock—Iron Fencing ...	...	T. Holloway, Surveyor, Chippenham.
Aug. 2	Ottawa, Canada—Supply of Steel Rails ...	...	L. H. Jones, Dept. of Railways & Canals, Ottawa, Canada.
" 23	Coolgardie, Australia—Steel Pipes ...	Government of Western Australia ...	Agent-General, 15, Victoria-street, Westminster, S.W.
ROADS—			
June 25	Brierfield, Lancs.—Road Material ...	Urban District Council ...	J. T. Landless, Engineer, Station-buildings, Nelson, Lancs.
" 26	Aberdeen—Road Work ...	Urban District Council ...	W. D. Jack, Borough Surveyor, Town House, Aberdeen.
" 27	Barrowford—Streets ...	Urban District Council ...	J. Mallinson, Borough Surveyor, Barrowford.
" 27	Barrowford—Road Material ...	Urban District Council ...	J. Mallinson, Borough Surveyor, Barrowford.
" 27	Ripon—Road Making ...	Rural District Council ...	J. W. Highmon, 19, Coltsgate Hill, Ripon.
" 29	Fulham—Road Making ...	Vestry ...	C. Botterhill, Town Hall, Waltham Green, S.W.
" 29	Christchurch—Supply of Granite ...	Corporation ...	E. J. Legg, Town Hall, Christchurch.
July 4	Hendon—Road Making, &c. ...	Urban District Council ...	S. S. Grimmer, Hendon, N.W.
No date.	Staines—Supply of Granite ...	Rural District Council ...	G. W. Manning, Surveyor, Staines.
"	Lancs.—Streets ...	...	McCall and Robinson, 7, Tacketts-street, Blackburn.
"	Leeds—Street Extension ...	Roberts, Mart, and Co. ...	Ambler and Bowman, 9, Park-place, Leeds.
SANITARY—			
June 25	Ashby-de-la-Zouch—Sewers, Manholes, &c. ...	Urban District Council ...	B. Everard, Millstone-lane, Leicester.
" 27	East Ardsley—Drainage Works ...	Urban District Council ...	E. Brook, Blackgates, East Ardsley.
" 27	Nelson—Sewering ...	Town Council ...	B. Ball, Borough Surveyor, Nelson.
" 29	Daventry—Re-draining ...	Guardians ...	J. B. Williams, Moot Hall, Daventry.
" 29	Great Berkhamstead—Sewers, &c. ...	Urban and Rural District Councils ...	J. Lemon, 9, Victoria-street, Westminster.
" 30	Chartham Downs, near Canterbury—Re-drainage, &c. ...	Kent County Asylums Committee ...	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 30	Runcorn—Sewerage ...	Rural District Council ...	W. Diggle, Holly Bank, Frodsham.
July 2	Eton—Sewerage Works ...	Urban District Council ...	Bailey, Denton, Son, & Lawford, Palace-chbrs., Westminster.
" 4	Caerphilly—Sewers ...	Urban District Council ...	A. C. Harpur, Council Offices, Caerphilly.
" 4	Walsall—Sewers ...	Rural District Council ...	J. C. Wilcox, Union Chambers, 63, Union-st., Birmingham.
" 20	Wolverhampton—Sewers ...	Sewerage Committee ...	J. W. Bradley, Town Hall, Wolverhampton.
FURNITURE—			
June 27	Knutsford—Furnishing Board-room ...	Guardians, Bucklow Union ...	J. M. Beath, Birnam House, Sale.
PAINTING AND PLUMBING—			
June 27	Keighley—Painting Schools ...	School Board ...	Clerk, School Board, Keighley.
" 23	Chelsea—Painting, &c. ...	Guardians ...	Landell and Harrison, 23, Bow-lane, Cheapside.
July 1	Sandal—Whitewashing Schools, &c. ...	School Board ...	R. E. Langhorne, Wakefield.
" 2	Ilkeston—Cleaning and Painting Schools ...	School Board ...	W. Lissett, Town Hall, Ilkeston.
" 4	Kippox—Painting Schoolroom ...	School Board ...	C. A. Phillips, Clerk, Castleford.
" 5	Sheffield—Painting Schoolroom ...	School Board ...	School Board Offices, Sheffield.
No date.	Arnold—Painting School ...	School Board ...	J. R. Swift, Clerk, Arnold.
"	Morecambe—Painting Houses ...	...	M. Shuttleworth, 22, Kensington-road, Morecambe.
"	Portsmouth—Painting Barracks ...	War Department ...	Royal Engineer Offices, Portsmouth.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 27	West Hartlepool—Refuse Destructor ...	£15, £10 ...	J. W. Brown, Borough Engineer, West Hartlepool.
" 30	Rotherham—Plans for School Department ...	...	School Board.
" 30	West Bangor, N.B.—Asylum Buildings ...	...	Edinburgh District Lunacy Board.
July 1	Linslade—Plans and Estimates for Sewerage Disposal and Water Supply Schemes. ...	...	Urban District Council.
" 1	Widnes—Laying-out Park, &c. ...	£36 15s., £10 10s., £5 5s. ...	Jubilee Commemoration Committee.
" 1	San Francisco Bay—Designs for University Buildings... ..	£10,000 (divided in two competitions) ...	Trustees of the Phebe A. Hearst Fund; represented in England by the R.I.B.A.
" 1	Formby—Schemes for Sewerage ...	£100, £50, £25 ...	Formby Parochial Committee.
" 2	Warrington—Designs for Police Station, Court House, &c. ...	£100, £50, £25 ...	Town Council.
" 16	Beverley—Extension of Offices ...	...	J. Bickersteth, County Hall, Beverley.
Aug. 15	Glasgow—Exhibition Buildings ...	£210, £157 10s., £105 ...	Glasgow International Exhibition.
" 16	Salford—Designs for Chapels, &c., at Cemetery ...	£50, £30, £20 ...	Corporation.
No date.	Glasgow—Sketch Models for Eight Stone Figures ...	...	Corporation.

PROPERTY & LAND SALES.

HAMPTON and SONS beg to announce that their AUCTIONS of LANDED ESTATES, town and country Residences, Investments, Business Premises, and other Properties, are held MONTHLY at the MART, Tokenhouse-yard, E.C.

Auctions can also be held on other days, in town or country, by arrangement; also Sales and Valuations of Furniture, Pictures, Farming Stock, Timber, &c.

June List of Estates, town and country Residences, Hunting Boxes, and Sporting Properties can be had gratis on application to Hampton and Sons (Ltd.), 1, Cockspur-street, S.W., or by post, three stamps.

Auction and Estate Offices, 1, Cockspur-street, Pall Mall, S.W.

FINCHLEY ROAD.

Occupying a pleasant position in this favourite residential locality, close to Marlborough-road Station, with frequent service of trains to the City and West End, and within a short drive of Regent-street.

The conveniently placed, double fronted, detached Family Residence and Stabling, known as Bishop's Lodge, 35, Finchley-road, N.W., substantially built, and standing well back from the road, approached by a carriage-sweep. Held for 39 years unexpired from Michaelmas next, at a ground rent of £20 per annum. Possession on completion of the purchase.

Also the Two well-placed and attractive, semi-detached Houses, Nos. 5 and 15, Finchley-road, N.W., each containing six bed rooms, bath room, three reception rooms, conservatory, and usual domestic offices. No. 5, Finchley-road, is let upon a five years' lease from September, 1897, at £90 per annum, thus forming a good investment. Both held on lease, having an unexpired term of about 25 years, at a ground rent of £11 per annum each. Vacant possession of No. 15 on completion of purchase.

HAMPTON and SONS will SELL the above by AUCTION, at the Mart, E.C., on WEDNESDAY, JULY 13, 1898, at 2 o'clock, in three lots (unless previously disposed of by private treaty). Detailed particulars and conditions of sale can be had of Messrs. FOSS and LEDSAM, Solicitors, 5, Fenchurch-street, E.C.; and of the AUCTIONEERS, 1, Cockspur-street, S.W.

TOOTING.—In the main road from Streatham to Mitcham.—Ripe Building Estate.—Close to Streatham and Tooting Junction Stations and the Recreation Ground.

WEATHERALL and GREEN will SELL by AUCTION, at the Mart, City, on MONDAY, JUNE 27th, at TWO, in one lot, 53 acres of valuable FREEHOLD BUILDING LAND, ripe for immediate profitable development, situate opposite Gorrings Park, and having a good frontage to Streatham-lane, possessing great capabilities for building. In addition, a valuable bed of gravel underlies most of the land. Let on lease determinable at Michaelmas, 1899, at £160 per annum.—Messrs. GROVER, HUMPHREYS and SON, Solicitors, Temple. Particulars of the AUCTIONEERS, 22, Chancery-lane.

TO BUILDERS AND OTHERS.—Messrs.

FULLER, HORSEY, SONS, & CASSELL are instructed by the proprietor, who is retiring from business, to SELL by AUCTION in lots, on the PREMISES, 33, Boundary-road, St. John's Wood, on WEDNESDAY, JULY 6th, at TWELVE o'clock precisely, BUILDER'S PLANT and MACHINERY, including a combined circular saw bench and irregular moulding machine, a 42in. drag saw bench, mortising and boring machine, vertical engine and boiler, shafting, 200 scaffold poles, 20 dozen cords, 400 scaffold boards, putlogs, steps, ladders, benches, cramps, &c.; stock of well-seasoned timber, comprising about 1000ft. super mahogany, 1500ft. super wainscot, cut stuff, quartering, mouldings, 50 squares flooring and matching; also 30cwt. white lead, oils, turps, varnishes, and painters' materials, boxes, jacks, plumbers' brass work, solder, sheet lead and pipe, ironmongery, &c.; 2 spring carts, hand truck, chaff-cutter, and other effects.—May be viewed by order, and catalogues had on the premises, and of the AUCTIONEERS, No. 11, Billiter-square, E.C.

CHEAP FREEHOLD BUILDING LAND, ripe for development by a formation of roads, and plotting, either for re-sale, or building upon at once attractively designed detached houses, and pairs of moderate size, &c. It is situate within about half a mile of the High-street, and a trifle over a mile from the Station at Sutton, Surrey, possesses a very long frontage to excellent hard road. The spot is very rural, and high and dry. Area about 80 acres. Details to principals only.—ALEX H. TURNER and Co., 199, Piccadilly.

TO BUILDERS.

The Freeholder of a large suburban Estate (S.W.) wishes to meet with ONE or TWO BUILDERS accustomed to building good-class suburban property of from £60 to £120 a year rental. Main road, prettily wooded sites for houses. Plenty of ground to each plot, several having tennis lawns; main drainage; cricket and tennis clubs and three golf courses within a mile. Eight miles from Royal Exchange. Some shop plots adjoining railway station on main road. The land will be sold or let with restrictions, and advances can be had. Unquestionably one of the best things going at the present time for the right man.

Freeholder's Surveyors and Architects, Messrs. CHESTERTON and SONS, 51, Cheapside, E.C.

TO BUILDERS.—FREEHOLD BUILDING LAND.—West Green Lodge, West Green road, Tottenham, almost immediately opposite the West Green Station.—To LET, by TENDER, on JUNE 24th, 1898, a very eligible piece of LAND, with frontages to three main roads, ripe for building, and suitable for the erection of eleven shops and nineteen small private residences.—For forms of Tender apply to Mr. C. E. JACKSON, Architect, and Messrs. GEO. and WM. WEBB, Solicitors, 39, New Broad-street, E.C.

MESSRS. GREEN and SON, AUCTIONEERS and SURVEYORS, 28 and 29, St. Swithin's-lane, London, Beg to announce that their SALES by AUCTION of FREEHOLD, LEASEHOLD, and COPYHOLD PROPERTIES, Ground Rents, Life Policies, and Reversions take place at the MART on the LAST FRIDAY in the MONTH, and on such other occasions as may be arranged.—Particulars are invited 21 days prior.

MESSRS. GREEN and SON undertake SURVEYS and VALUATIONS of LAND and HOUSE PROPERTIES, as well as Machinery and Plant, for

Ratings, Compensations, Partnerships, Assessment Appeals, Estate Duties, Dilapidations, Fire Losses, Mortgages, and other purposes. Estates managed and rents collected under Receiver-ship and other powers.

MESSRS. GREEN and SON invite the attention of persons requiring money on mortgage to their

MORTGAGE LIST.

founded in the year 1853 (entered at Stationers' Hall), which contains particulars of sums of money in the hands of trustees and solicitors by whom they are instructed to obtain securities.

Auction, Land, and Estate Offices, 28 and 29, St. Swithin's-lane, E.C.

SUTTON, SURREY.—FREEHOLD BUILDING LAND for SALE, in cheap lots. Practically no restrictions. Roads made, gas and hot-water laid on. Free conveyances. Any sized plots. Payment by instalments if required.—BROOKS and HELLER, 8, Old Jewry, E.C.

MESSRS. FORTESCUE and BRANSON have received instructions to SELL by AUCTION, at the MART, Tokenhouse-yard, E.C., on MONDAY, JULY 4th, 1898, at two precisely:

The four long Leasehold Dwelling Houses and Laundries, known as 6, 20, 22, and 24, Wendell-road, Shepherd's Bush. Let and producing £180 per annum, tenants paying rates and taxes. Held for long terms at moderate ground rents.—Solicitors, Messrs. Church, Rendell, Todd, and Co., 9, Bedford-row; and Messrs. Ford, Lloyd, Bartlett, and Co., 33, Bloomsbury-square, W.C.

By order of the Executors of the late Mrs. Shepperson.—A charming double-fronted Residence, with room to erect a stable at the rear, known as 17, Ryelott-road, Ravenscourt Park. Let at £60 per annum. Held on a long lease, at a moderate ground rent.—Solicitors, Messrs. Pearlless and Sons, East Grinstead. Particulars and conditions of sale of the respective SOLICITORS; at the Mart; and of the AUCTIONEERS, 54A, Goldhawk-road, Shepherd's Bush, W.

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E.

R.I.B.A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

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NOTTINGHAM.—Old-established SANITARY PLUMBER'S BUSINESS, large jobbing and contracting connection, for DISPOSAL, owing to death of proprietor; main thoroughfare; recently fitted up workshops; splendid modern plant; unique opportunity for wholesale plumber; large contracts running.—Apply MELLORS, BASDEN, and MELLORS, Estate Agents, King John's Chambers, Nottingham.

WATERPROOF COVERS, made from very best Navy canvas, 12ft. by 9ft. 15s.; 15ft. by 9ft., 18s. 9d.; 18ft. by 12ft. 25s.—Any size, at 1s. 3d. per square yard, can be sent on approval from H. J. GASSON, Government Contractor, Ely.

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The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

TRAVELLER WANTED by J. H. Sankey and Son, Lime, Cement, Brick, Slate, Sanitary, and Fire-clay Goods Merchants, Essex Wharf, Canning Town, for East Middlesex District. Must be familiar with all goods, and able to wait on architects, engineers, builders, &c.—Apply fully to Head Office, as above.

COSTING CLERK REQUIRED, accustomed to Builder's or Engineer's office. Must be quick at figures. One with a knowledge of architectural drawing preferred.—Address, stating age, salary expected, with copies of testimonials, to Box 745, BUILDERS' JOURNAL Office.

WANTED, ARCHITECT'S ASSISTANT (W. R. Yorkshire). Details, quantities, quick draughtsman.—Salary, &c., to M. S. A., BUILDERS' JOURNAL.

ARCHITECT and SURVEYOR'S ASSISTANT REQUIRED. Must be a neat and quick draughtsman, and able to write specifications. Preference to one with knowledge of quantities and measuring work.—Send specimen drawings, age, salary, and particulars, F.R.I.B.A., 7, Bank-buildings, Ilford, Essex.

ARCHITECTURAL ASSISTANT (fully qualified) WANTED at once. Good at perspective and details.—Write, stating age, experience, salary expected, with copies of testimonials, to ARCHITECT, 3, Hyde-gardens, Eastbourne.

LONDON COUNTY COUNCIL. APPLICATIONS are invited for the post of ASSISTANT in Estimating and Measuring Office of the Works Department.

Candidates must be well up in quantity surveyors' work and prices, and have a practical knowledge of builder and contractor's work.

Commencing salary, £3 10s. per week. Forms of application can be obtained from the MANAGER of the Works Department, Belvedere-road, Lambeth, S.E.

Latest time for receiving applications TEN a.m., MONDAY, JUNE 27th, 1898.

LONDON COUNTY COUNCIL. APPLICATIONS are invited for the Post of JUNIOR ASSISTANT in the Drawing Office of the Works Department.

Candidates should be good tracers and colourists. Commencing salary 23s. per week.

Forms of application can be obtained from the MANAGER of the Works Department, Belvedere-road, Lambeth, S.E.

Latest time for receiving applications, TEN a.m., MONDAY, JUNE 27th, 1898.

APPOINTMENTS WANTED.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

YOUNG ARCHITECT, A.R.I.B.A., DESIRES to ASSIST others in the PREPARATION of DRAWINGS at his own office. G. SCOREE, 23, Newman-street, W.

TO LAND AGENTS and COUNTY SURVEYORS.—Plans from rough sketches by first-rate draughtsmen. Farm Buildings and Workmen's Cottages a speciality. Most moderate terms.—Letters, ROYAL ENGINEER, care of Mr. West, Avonmore Villa, Knaphill.

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The Application List will open on Wednesday, the 22nd day of June, 1898, and close on or before Friday, the 24th day of June, at 4 p.m.

THE HYDRO-INCANDESCENT GAS LIGHT COMPANY LIMITED.

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Issue of 200,000 Shares, which are now offered for subscription at par, payable as follows:—2s. 6d. per Share on application, 7s. 6d. on allotment, and 10s. one month after allotment.

DIRECTORS.

SIR WILLIAM ROBINSON, G.C.M.G., late Governor of Hong Kong, 53, Ashley Gardens, S.W.
HENRY A. GREIG, Esq., Chairman Limmer Asphalte Company Limited, 2, Moorgate Street, E.C.
SIDNEY MARLER, Esq., Director, Waring and Gillow, Limited, 175 and 176, Sloane Street, S.W.
* MARTIN WASSERMANN, Esq., D.C.L. (Heidelberg), Director of Internationale Hydro-Press-Gas Compagnie Limited, Hamburg.
* Will join the Board after allotment as the Representative of the Internationale Hydro-Press-Gas Compagnie, Limited, of Hamburg.
With power to add.

BANKERS.

THE CAPITAL AND COUNTIES BANK, LIMITED, Threadneedle Street, London, E.C., and Branches.

BROKERS.

Messrs. LUMSDEN & MYERS, 29, Cornhill, and Stock Exchange, London, E.C.

SOLICITORS FOR THE COMPANY.

Messrs. FAITHFULL & OWEN, 11, Victoria Street, S.W.

SOLICITOR TO THE VENDORS.

CLAUDE M. TREADWELL, Esq., 49, Queen Victoria Street, E.C.

AUDITORS.

Messrs. LAYTON, BENNETT & Co., Bishopsgate House, Bishopsgate Street, E.C.

GENERAL MANAGER.

G. T. AUGSPURG, Esq. (late of the Welsbach Incandescent Gas Light Company Limited).

SECRETARY.

CHARLES WEYLAND, Esq.

OFFICES.

88, Victoria Street, Westminster, S.W.

PROSPECTUS

This Company has been formed for the purpose of acquiring the whole of the British, Indian, Australasian, South African, and Canadian patent rights, and all other rights incidental thereto, of the Hydro-Incandescent Gas Light, and the benefits of the valuable licence with the Welsbach Incandescent Gas Light Company hereinafter referred to.

This Company has had transferred to it a contract and licence with the Welsbach Incandescent Gas Light Company whereby the latter undertakes, for a minimum period of five years, to manufacture and sell the apparatus, paying over to this Company 50 per cent. of the gross profits, not charging anything for establishment expenses, advertising, or cost of selling and placing on the market, and during the continuance of the licence not to make use of any other hydraulic gas pressing apparatus; and that, in the further event of the contract being determined, this Company is to be deemed to have a licence to use the Welsbach mantles and burners, and the Welsbach Incandescent Gas Light Company are to supply such mantles and burners at a discount of 30 per cent. from the current price.

The Hydro-Incandescent Gas Light embodies a most ingenious, practical and useful advance in lighting power for hotels, theatres, concert halls, shops, manufactories, railway stations, streets, barracks, docks, lighthouses, foundries, cotton and other mills, and all other places where brilliant illumination and hygienic conditions, combined with safety, are desired.

The apparatus by means of which the advantages of this light are achieved is exceedingly simple, and can easily be fitted to existing gas and water supplies. The resultant light is superior to the electric arc light, being absolutely steady and devoid of the bluish flickering glare which characterises the latter. Notwithstanding its greater illuminating power, the light is more salutary than any other form of artificial light, owing to the fact that it more nearly approximates the sun's rays, and shades of colour are as readily distinguishable as in the daylight.

One of the effects of the hydro treatment is to remove impurities from the gas, which, under the old conditions, escaped through the flame. Another important feature in connection with the Hydro-Incandescent Light is that no covering whatever is required. It burns quite steadily and effectually, even in a dusty factory, without globe or chimney, but for decorative purposes the usual gas globes may be employed.

Beyond the great monetary saving effected by dispensing with chimneys, and the economy of mantles, under the new system, one burner will do the work that many were required to accomplish. A single burner consuming ordinary gas as supplied from the main of a gas company can, if desired, give a light up to 1500 (fifteen hundred) candle power, at a much lower price than an electric arc lamp.

The Welsbach Incandescent Gas Light Company use for the distribution of their goods no fewer than 16,000 agents and traders in the United Kingdom. Through the contract referred to, the Hydro-Incandescent Company will practically avoid the expenses and delays attendant on organising an establishment of its own; therefore, this Company starts under the brightest auspices.

England, without doubt, is one of the largest fields for the sale of Incandescent Burners and Mantles, and it is stated that in the United Kingdom there are over 200,000,000 gas jets in use, and that not five per cent. of these are Incandescent Lights. The future prospects therefore for the Hydro-Incandescent Apparatus deserve close attention.

In addition to the income to be derived from the Company's operations in Great Britain, the Indian, Australasian, South African and Canadian Patents are of high value, and the Directors feel confident that a considerable revenue is secured for the Company from its inception.

The validity of the letters patent which the Company will acquire has been thoroughly investigated. The following is the opinion of Mr. J. Fletcher Moulton, Q.C.:—"I have examined the specification and claims of the letters patent granted to Rothgesser, No. 8186 of 1897, and the prior specifications disclosed by the search in British and American specifications by Messrs. Jensen and Son, Patent Agents, and I am of opinion that the letters patent are valid and adequately protect the apparatus as made."

The purchase price of the patents and all rights for Great Britain, India, Australasia, South Africa, and Canada, together with the benefits of the licence to the Welsbach Incandescent Gas Light Company Limited, has been fixed by the Vendors, who are the promoters, at £150,000, payable as to £113,334 in cash, and the balance in cash or partly in cash and partly in shares, or £66,666 in shares at the option of the Directors, being the maximum allowed by the rules of the Stock Exchange, leaving £20,000 for working capital.

The Vendors are also entitled, under a valuable Contract dated the 3rd day of June, 1898, and made between the Internationale Hydro-Press-Gas Compagnie Limited, of the one part, and themselves of the other part, to an option, until the 31st December, 1898, to purchase the United States, Russian, French, Belgian, Italian, Austrian, and Hungarian patents, or patent rights, relating to the Hydro-Incandescent Gas Light, or any of them, subject as to the United States and Belgium patents to certain negotiations which have been already entered upon by the Internationale Hydro-Press-Gas Compagnie Limited, but the benefit of which will be assigned to the Vendors, and by their Contract with the Company they have agreed to pay to the Company 25 per cent. of the gross profits made by them on the resale of these patents, or patent rights, or any of them.

The following contracts have also been entered into:—

Contract, dated the 17th day of March, 1898, and made between the Internationale Hydro-Press-Gas Compagnie Limited, of Hamburg, Germany, of the one part, and Maurice Joseph Wells and Samuel Husbands Beckles of the other part, being the agreement under which the Vendors are acquiring the premises from the present owners, the above-named German Company. Contract, dated the 4th day of June, 1898, and made between the said Maurice Joseph Wells and Samuel Husbands Beckles of the one part, and the Company of the other part, being the contract under which the Vendors sell the premises to the Company at a profit, as modified by agreement endorsed thereon, dated June 3rd, 1898, and made between the same parties. Also a license, dated the 19th day of February, 1898, made between the Internationale Hydro-Press-Gas Compagnie Limited, of Hamburg, Germany, of the one part, and the Incandescent Gas Light Company Limited, of the other part, being the license above referred to, and as regards the interests of the Incandescent Gas Light Company Limited, vested in the Welsbach Incandescent Gas Light Company Limited.

Applicants are to be deemed to have full notice of the contents of the above contracts and license, and to have agreed with the Company as a Trustee for the Directors and other persons liable not to make any claim whatsoever, or to take any proceedings under Section 38 of the Companies Act, 1867, or under the Directors' Liability Act in respect of any non-compliance with the said Section, or any mis-statement in the Prospectus made by the Directors under the bona-fide belief that it was true.

There are other agreements and arrangements made by the Vendors in connection with the promotion of the Company and the providing of the capital thereof to which the Company is no party, which may be within the said Section 38 of the Companies Act, 1867, and applicants for shares shall be deemed to have full notice of these agreements, and to have waived all rights to be supplied with particulars of such contracts, and to have agreed with the Company as a Trustee for the Directors and other persons liable in manner above mentioned.

The Vendors will pay all costs in connection with the formation and registration of this Company down to the first general allotment of shares, except the stamp duties on the agreements for purchase and brokerage.

The Memorandum and Articles of Association of the Company, and the said covenants and agreements and license, together with Mr. J. Fletcher Moulton's opinion, can be seen at the offices of Company's Solicitors.

Application will be made in due course to the Committee of the Stock Exchange for a special settlement and official quotation.

Applications should be made on the form enclosed, and forwarded to the Bankers of the Company with the amount of deposit. When no allotment is made the deposit will be returned in full, and if the number of shares allotted be less than that applied for, the surplus will be credited in reduction of the payment on allotment, and any balance will be returned.

Copies of the Prospectus and Forms of Application for Shares can be obtained at the Registered Offices of the Company, or of the Bankers, Solicitors, or Brokers. London, 15th June, 1898.



An Architectural Causerie.

Our Street Crossings.

THE proximate opening of the City and Waterloo Railway, and the progress of the other great subterranean railway works beneath the open space on which the Bank of England, the Royal Exchange, and the Mansion House front, have called attention

of the perils of the streets, and fares forth across the most tumultuous assembling-places of traffic with an absolute disregard of danger which stands him in good stead, until at last even his coolness is of no avail, and he is bowled over by that terror of the streets—the silent, rubber-tyred cab, and taken off to the hospital. One need not be an alarmist to point out these facts. The only reason why they are not more patent to the ordinary newspaper reader is that the editors of our morning papers have not yet discovered the annual report of the Chief Commissioner of Police to be the raw material for many sensational articles, and have not yet worked the subject up. When this official literature is discovered and duly exploited, the Man in the Street will know all about it, and will want to know about the subways or the footbridges which we ought to have for the proper avoidance of the worst crossings in London. Then, and only then, we shall be by way of getting

ground communication for that thronged pedestrian traffic which surges about that central point where the Bank stands, and where Queen Victoria Street, Cornhill, Lombard Street, King William Street, Cheapside, Prince's Street, and Throgmorton Street converge. There are a dozen or more points in London where such communication is most ardently to be desired. What London citizen does not know that dangerous pass at the City end of London Bridge, where a constant stream of contending heavy traffic clashes at the confluence of Gracechurch Street with Cannon Street and King William Street? And again, one has only to instance that point where Cheapside Newgate Street, St. Paul's Churchyard, and St. Martin's-le-Grand pool their respective vehicular throngs, for it to be recognised that some other communication than that now existing between the two sides of those thoroughfares is demanded. It may readily enough be granted that these subways will



A shop
in Tarragona

SPAIN: ITS PICTURESQUE CITIES AND MONASTERIES.

DRAWN BY F. HAMILTON JACKSON.

to that long-standing topic of discussion—our street crossings—and people are beginning to ask how much longer we are to be content with seeing the heavy lorry, the lumbering omnibus, and the swift and lethal hansom cab take toll of human life in our crowded thoroughfares, for lack of some safe and ready communication overhead or below ground. Only a careful reference to the returns of the Metropolitan Police could show exactly how fatal our crowded street crossings are, not only to the aged and the infirm, but to all alike; for your average Londoner reck little

them, and the lieges no longer be obliged to take their lives in their hands with every recurring day. That the dangers of these crossings are recognised, is evident from the care with which the City of London authorities provided that (as the price of withdrawing their opposition to the Bills of the City and Waterloo, Central London, and City and South London Railway Companies) those companies should make and maintain an extensive series of subways which would give access, not only to their several stations, but would also provide for an under-

not be things of beauty; that, indeed, they are the unwilling price we must pay for our proud pre-eminence among the busy cities of the world; but that they are necessary evils none will be found to deny. Nor will many be found to declare for the only alternative—overhead bridges—which would be at once a very real nuisance and an intolerable eyesore. Can we imagine such things, say, at Ludgate Circus; at that perilous passage at Blackfriars where Queen Victoria Street and the Victoria Embankment join on a steep gradient and at a sharp curve, and are intersected by

New Bridge Street? Can we think of such a possibility at that other dangerous crossing, at Hyde Park Corner, and yet remain unmoved? But, on the other hand, can we longer defer our subways, and let our fellow-men and women perish of the perils of the streets?

C. G. H.

The Late Lamented, and its Successor.

WHEN the Metropolitan Board of Works deceased some years ago, un-
honoured, if not unsung, full of years and iniquities of various sorts, great were the rejoicings of the municipal reformers. To the late Mr. J. B. Firth in great measure, and to the Daily Telegraph in almost equal degree, we owe that successful agitation which finally brought about the burial of the so-called "Board of Perks" and the birth of the London County Council. Shall we ever forget the crusade of the Daily Telegraph, carried on under that lilting war cry of "Why Should London Wait?" We think not. Those were the strenuous days of the Telegraph, and it rode its hobbies hard; and so, with the aid of the Municipal Reform League, and a complaisant Conservative Government, we got our brand new authority, and were as pleased with it as a child with a new toy—for a time. But the glamour has long since worn off that plaything. As a nursery for certain political prejudices, as a kind of ante-room or training-ground for Parliament, the L.C.C. has its uses; but not to that end was it created. As constituted during its last three terms, the London County Council has striven to usurp many of the functions of Imperial Parliament, and, finding its efforts so far in vain, has sulked and refused to put in hand many of those public works for whose furtherance it was primarily created. "Withhold 'Betterment'" say those fractious Councillors, "and we will delay public improvements"; and so many of London's crying needs still go unsatisfied. Such works as have been carried through have been advertised as thoroughly as ever soap or cocoa have been. It is not the policy of the L.C.C. to: "Do good by stealth, and blush to find it fame." Neither, indeed, was it precisely the policy of the late lamented Board of Works; but at least that defunct body did not bang the big drum as its successors do. Works were done then—and quietly. To the Board, let us not forget, we owe the Victoria Embankment, Northumberland Avenue, Holborn Viaduct, Shaftesbury Avenue, and Charing Cross Road, to name but a few of the more important works of from thirty years to ten years ago. That record should be sufficient to discredit the campaigns of praise and apology which the fuglemen of the L.C.C. have, at one and the same time, entered upon. This is not to say that the Council has been idle. It has, on the contrary, been particularly busy in the matter of public improvements—so far as discussion of them goes. We do not remember how many schemes have been drafted so far for that urgent necessity, the new street from Holborn to the Strand; but newer and different plans are even now in the making, although for a considerable time past the Council has possessed Parliamentary powers for a scheme adopted long ago. Holywell Street stands where it did, although we recollect with the utmost distinctness that all the enterprising illustrated papers of five years ago illustrated it as a thoroughfare presently to be demolished. Folks took the London County Council at its word in those days. We have learnt better since.

F. F. S.

A KEY TO ENGLISH ANTIQUITIES.*

By ELLA S. ARMITAGE.

THE authoress of this book states in her preface that her object is primarily "to bring a great pleasure within the reach of many persons who would never think of themselves as antiquarians," and that she aims at "putting into the hands of the people of Sheffield and Rotherham a key to the antiquities of their neighbourhood, which will help them to understand and enjoy antiquities all over the kingdom." That object should be attained if the persons whom she aims at instructing and interesting can be induced to take up her book and read it through; but it is exceedingly difficult in these days of half-penny periodicals to persuade those who are not already interested in a matter to take up a book which professes to instruct, and read it through, and most of those who are already interested would desire fuller information than is to be found in Miss Armitage's work. Apart from this insufficiency, few faults are to be found. The book is well arranged and clearly written, the various monuments are described from personal knowledge, and the works of standard authorities upon the historical and archaeological remains of the district have been consulted and are freely quoted. It commences with an historical introduction, which gives a short sketch of the vicissitudes which Sheffield and its neighbourhood have experienced in the course of ages, and of various persons of more or less importance historically who have been connected with them, terminating with Bess of Hardwick, Countess of Shrewsbury, that great builder and masterful woman, to whom posterity owes Hardwick Hall and Bolsover Castle, and who also rebuilt Chatsworth. Then the body of the book commences with a chapter in which the subject of prehistoric remains is treated, and earthworks of various kinds are fully described; Roman remains (which are of the slightest kind) are mentioned, and later earthworks also. Then follows a short summary of the development of Architecture in England, with notes of salient differences of style for the guidance of the unlearned. Next, Norman castles are treated of, followed by those of later date, and the development of the English country house from them. "The Mediæval Church and Monasticism" leads to an account of Roche Abbey, followed by a chapter on parish churches in general, and another on tombs and churchyard crosses, which also contains a slight sketch of the changes in English costume from the twelfth century to the sixteenth, while in an earlier chapter are a few notes on that of monks and canons; and a long gazetteer-like chapter terminates the body of the book, with descriptions of the various parish churches arranged alphabetically. From a note in the preface, naming four unvisited churches, this chapter appears to be exhaustive. For the convenience of students, whom the authoress wishes to lure on to the study of archaeology, a glossary of architectural terms is added, and a pretty long list of works, by means of which they can pursue that study, if they so desire. All through the authoress has kept the unlearned before her mind's eye, making her book a compound of guide book and manual. The illustrations are very poor for the most part, though there are plenty of them, and also a map of the district. The appearance of this book may be welcomed as a local attempt to interest inhabitants in the antiquities of their own district, and one may hope that others will follow in the same path as Miss Armitage, taking up other districts in the same manner, for such books, illustrated more adequately, would be of great use to students of local antiquities all over the kingdom.

S. S. G.

* "A Key to English Antiquities: With Special Reference to the Sheffield and Rotherham District." By Ella S. Armitage. Sheffield: William Townsend, 1897.

THE LIKENESS OF CHRIST.

IT is reported that a photograph has been obtained which reproduces the exact portrait of our Saviour. The following is the description given by a Canon of the Turin Cathedral who has had occasion to examine the plate:—"The Redeemer, who miraculously left the imprint of His sufferings and the lines of His body on the shroud which enveloped Him in the tomb, has miraculously reappeared on a photographic plate with a perfection of detail that causes stupefaction. The noble figure has come forth anatomically elegant, perfect, and divinely beautiful. The countenance is still marked with ineffable suffering. All the details are there—the minutiae of the beard, the hair, the profile, the wounds, the welts, the mark of the rope with which He was bound to the scourging pillar. In a word, after the human race, aided by tradition, has for eighteen centuries been conjuring up to itself the physical appearance of Jesus of Nazareth, the photograph of the sacred shroud has given forth His portrait. The rumour of the marvellous event, mingled with trepidation, doubt, hope, and wonder, spread like wildfire in Turin. His Grace the Archbishop, Duchess Isabella, Princess Clara, illustrious prelates, artists, and business men hastened to the studio of Signor Pia to investigate the truth of the rumour. They were one and all convinced. A noted archaeologist and artist, who had previously expressed doubts as to the authenticity of the shroud, was now forced to exclaim: 'Either this is the true shroud, or it is a god who has painted it.' To understand how it is that the photographic plate renders the figure of the Saviour with a perfection that is not observed when the shroud is examined with the eye, it must be noted that the shroud bears the negative of the Saviour's body. The plate gives the negative of this negative, that is, the positive of Christ's appearance. It follows, however, that the printing of the photograph from the plate on paper gives once more the negative of the body, and accordingly the detailed portrait of our Redeemer is visible only on the plate. This plate will within a few days be placed for view in the Sacred Art section of the Turin Exhibition. Reproductions of it will be issued at the end of the month. The artistic property is reserved to the Crown, and all copies will bear the stamp of a committee specially appointed for the purpose."

ALTERATIONS which have been in contemplation for over thirty years have been commenced at Shrewsbury Station, and will involve an expenditure by the joint railway companies of something like £300,000. At the Birmingham end of the station the viaduct which crosses the Severn is to be widened to three times what it is at present, for what is practically a new bridge will be erected on either side of the present structure. In the centre of the river will be a pier of cylinders, from which will run a one-span arch to each bank of 100ft. between the piers. For this work the Cleveland Iron Company have entered into a contract for about £160,000, which includes other extensions at the same end of the station. At the other end, where the Chester and Crewe lines branch off, there will also be extensive improvements. The bridge, which at present crosses Castle Foregate, is 80ft. wide, and its width will be increased to 217ft., but there will be an open space for affording light for street traffic. A number of shops and private houses are to be demolished. One street (Cross Street) will be covered by another widened bridge, and Howard Street will be "moved" lower down the Foregate, and the gradients improved. These alterations will necessitate many minor ones, and a few years hence, for the work must necessarily occupy a considerable time, Shrewsbury Station will be double its present dimensions, and may be fairly expected to meet the requirements of an important railway centre.

SPAIN: Its Picturesque Cities and Monasteries.

III.—TARRAGONA.

By F. HAMILTON JACKSON.

(Continued from page 348.)

THE greatest historical interest of Tarragona Cathedral consists in its being the resting-place of the ashes of several of the mighty kings and queens of Aragon, which were removed hither from Poblet after the destruction of that monastery. Here, in particular, in a tomb forming part of the *trascoro*, itself brought from Poblet, rests the body of Don Jaime, *El Conquistador*, the great hero of Catalonia, who died in 1276. He it was who conquered from the Moors Valencia, Murcia, Majorca, &c. He it was who established the municipal body of Barcelona, called the Council of the Hundred, and he was one of the first sovereigns of Europe to establish a standing army. He was on his way to Poblet to become a monk, when he died at Valencia. On his death-bed he confided his good sword, "*La Tizona*, his dearest jewel!" to Don Pedro, in whose favour he had abdicated that same year at Alcera.

In 1836 the revolutionists destroyed the royal sepulchres at Poblet, which had been only damaged by Suchet, and cast their contents to the winds. A parish priest, whose church was near, piously collected them, and gave them shelter in his church for some years, and in 1853 they were removed to Tarragona, most of them to be reinterred in the cloister, the mummy of Don Jaime, which was wrapped in lead, with pieces of glass inserted, through which the body could be seen, being placed in the tomb already mentioned.

The chapter possesses a remarkably fine series of Flemish tapestries, dating from the fifteenth to the seventeenth centuries. They are used to decorate the piers and *rascoro* at high festivals, and it is worth while to so arrange a projected visit to Tarragona as to time it during the octave of one of the great festivals, for the purpose of seeing them.

The cloisters—a drawing of which is reproduced in the Supplement—are among the most beautiful in Spain, and are most interesting both in style and detail. The entrance door from the north transept of the cathedral is purely Romanesque, the tympanum filled with a



TARRAGONA CATHEDRAL: RIGHT HAND JAMB OF CENTRAL WESTERN DOORWAY.



TARRAGONA CATHEDRAL: GREAT WEST DOOR.

relief of Christ in Glory, with the symbols of the evangelists around, above a central pillar, the capital of which is carved with the adoration of the kings and other subjects. It rests upon a square base, surrounded with intertwined serpents, and the sacristan tells you that this came from a temple of Æsculapius. The range of little columns in the jamb has most beautifully carved capitals, showing, among other things, the three kings of the East sleeping in one bed, to whom an angel appears in vision. But all the capitals and abaci in this wonderful cloister are beautifully carved, either with figure subjects, ornament, or grotesques, such as the celebrated funeral of the cat, carried to its grave by the mice, who suffer for their charity. There are six large pointed arches in each walk of the cloister, beneath each of which are three smaller round arches, which rest upon twin columns. Above these lower arches the wall surface is pierced by two circular openings, which were filled with plate tracery of Moorish character. Many of these were destroyed by the French, but when they were all complete the effect must have been even more charming than it is now. The canons live in dwellings which open on the terrace above the cloister walk, and there is some good iron work there in a well-head. In the wall below are encrusted fragments of Roman sculpture, sepulchral inscriptions, and the Moorish arch of a small Mihrab or oratory—this dates from the year 960. Another inscription on the wall, "8th Company," is a memorial of the passage of some English cavalry who were billeted here. The centre of the cloister is occupied by a charming garden with fountains and marble seats made out of Roman remains. Palms and other tropical plants mingle with the flowering shrubs of more temperate climes, and the bay and the olive combine to make the place delightful with their shapely foliage.

Outside the cathedral, on the south side, is a little plaza planted with slim trees, beneath which picturesque market women sit with their wares in the early morning, but the principal market is held below the cathedral steps, where all sorts of produce are sold, fish, vegetables, fruit, old clothes, tin ware, &c.; a bewildering confusion of colour beneath striped awnings, themselves often gay enough in the sunlight, a confusion of flashing eyes and fluttering hands as bargains are struck, a



TARRAGONA CATHEDRAL: SOUTH-WEST DOOR.

confusion of laughter and clattering tongues, of old jokes and keen bargaining, mingling in one distracting whirl of busy life. Further away, to the east of the cathedral, is the Church of St. Tecla la Vieja, a Romanesque building of the twelfth century, which contains some curious, rather early tombs, which are quite Italian in feeling. They are in the form of small sarcophagi, almost like coffers, indeed, which are supported by two brackets some way up the wall, and are carved and gilded, and coloured somewhat like the reliefs in the chapel to the left of the entrance in S. Pietro in Vincoli, Rome. The plan of the church is a small nave and a chapel transept like, to the right of the altar, no aisles nor columns about it. Most of the tombs are collected in the chapel. The door of this church was probably the model imitated by Archbishop Gonzalez when sheathing the doors at the west end of the cathedral. The windows of the cloisters are protected by iron grilles having the symbol of the cathedral, a tau cross, intertwined with the hammered foliage, and facing this back part is the fine new seminary, in the courtyard of which is preserved yet another twelfth century church dedicated to St. Paul. To the north of the cloisters is the Quartel del Patriarca, the Archbishop's Palace, formed out of a Roman edifice, which contains one of the ancient towers within its precincts, and from here is a steep descent towards the Plaza San Domingo, which skirts the ancient wall of the city, and gives every opportunity of examining the different kinds of masonry used in it. In the Plaza San Domingo is a half-ruined building composed of work of various dates, and said to have been a palace, which is picturesque.

Outside the Puerta Rosario for some distance, both ways, the walls may be studied, the view being unobstructed by buildings. From this point the prospect is very fine, reaching to the finely shaped mountains which turn the Ebro towards Tortosa, across miles of a level and fertile plain called the Campo de Tarragona, where vines and nut trees grow luxuriantly, with the shore of the blue Mediterranean curving away towards the left. Below on the right is a little aqueduct made by one of the archbishops, which stretches from the nearest hill to the Plaza de Armas, where the garrison exercises below the walls of the Archbishop's Palace. There is a more important aqueduct of Roman work a league away along the road to Lérida. It consists of two rows of arches, the lower of eleven, and that above of twenty-five; its large square stones are put together without mortar, like many other Roman aqueducts. It is now ruined, but originally carried the water of the Gayá from Pont de Armentara twenty-miles away, partly above and partly under ground. It stands picturesquely in a small valley, amid fan-like palmetto, wild thyme, and sweet-scented rosemary, rising 90ft. above them. It is called, of course, "El Puente del Diablo," the common folk generally ascribing any wonderful work to his Satanic Majesty! There is another bridge, at Martorell, not far away, known by the same name, which consists of one enormous pointed arch, 133ft. wide, rising high above the river Llobregat, with a little chapel perched on the apex, a work which perhaps still more affects the imagination. It is, of course, Moorish, though an inscription states that its builder was Hannibal! The lower part of the town is

grouped around the port, and while it affords a busy scene of commerce, has little interest from the point of view of Art or Archæology, though I believe that the pier is built of materials taken from the Roman amphitheatre, and occupies the same site as a very ancient one.

An interesting excursion may be made to the monument known as the "Torre de los Escipiones," which lies about a league away towards Barcelona. It is reported to be the grave of the Scipios, but their real burial place is unknown. This monument lies close to the road, amid aromatic shrubs. Upon a large base, it rises to a height of about 30ft., formed of huge boulders. On the side next the sea are two figures, each raised upon a small pedestal, their heads resting on their hands, and their countenances expressive of grief. The stonework is much corroded. An alabaster inscription was taken from here by Cardinal Ximenez—in that which remains one word only is legible, and that word is "perpetuo!" The view of Tarragona from this point is charming; the city slopes down towards the mole, and on the left lies the Mediterranean, studded with white sails, while the distant hills appear through the network made by the red pine branches, and glitter through the dark velvet of their green and tufted heads. It is the place of all others from which to say "farewell" to Tarragona.

(To be continued.)

A THAMES EMBANKMENT SCHEME.

THE Improvements Committee of the London County Council, having considered a scheme for the embankment of the Thames from the Victoria Tower Garden, Westminster, to Lambeth Bridge, and the widening of Millbank Street, have issued a report on the progress made, but do not at present recommend the adoption of any particular scheme. They state that they had proceeded on the assumption that the present direction of Millbank Street would be maintained, that the street would join Horseferry Road at the present point, and that all the houses and wharves east of Millbank Street would be removed and the existing gardens to the south of the Houses of Parliament extended to Lambeth Bridge. If such a scheme were undertaken, Millbank Street being increased to 60ft., the estimated cost of the necessary property, after deducting recompent, would be £601,500, and the cost of the embankment and making up roads £41,000, making a total of £642,500. If, in lieu of laying out the land to the east of the street as a garden, the site should be let on building leases—the new buildings to have a frontage to the river and a road between them and the river—the recompent would be enormously greater, and the estimated net cost of the scheme more than £71,900. The cost to the Council of laying out as a garden the land to the east of Millbank Street, which would be about four acres, would be £570,600. While recognising the importance of such an improvement in throwing open Millbank Street to the river and extending the public garden, they felt that, having regard to the other public improvements required in all parts of London, the outlay of £570,600 on the acquisition of about four acres of garden could not be justified unless Parliament was prepared to make a large contribution towards the cost, in view of the importance of improving the access to the Houses of Parliament from the south and of removing further from them the buildings in Millbank Street. During the consideration of the matter, the chairman (Mr. Shaw Lefevre) had suggested that the cost of the scheme might be considerably reduced by altering somewhat the line of Abingdon Street and Millbank Street by commencing Abingdon Street at an angle from Old Palace Yard and continuing thence in a direct course to the abutment of the new Lambeth Bridge. By that means a great improvement to the access to the Victoria Tower of the Houses of Parliament would be effected, and the claim for a contribution by Parliament towards the expense of the scheme strengthened.

POETRY IN ARCHITECTURE.

BY GEORGE AITCHISON, R.A.

PROFESSOR GEORGE AITCHISON, R.A., delivered a very interesting address on the occasion, on Monday week, of the presentation to him of Her Majesty's gold medal for the promotion of Architecture. The presentation, as reported in our last issue, was made by Mr. F. C. Penrose, F.R.S., at the last ordinary general meeting of the Royal Institute of British Architects. In acknowledging the honour, Mr. Aitchison said, after returning thanks:—The most cherished desire I have is to see English Architecture come to the forefront, and

ERECT MASTERPIECES IN ENGLAND

which can epitomise the grand thoughts of the day, and give them a character which will attract mankind. When I look at Salisbury, at York, at Peterborough, at Durham, and at Lincoln, I cannot think that they fall greatly below the most renowned cathedrals of Europe, I cannot believe that the nation that has given us the steam-engine, the railway, the telegraph, the steamboat, and all the triumphs of iron; that has given us Darwin, Tyndall, Huxley, and Herbert Spencer; Parkes, Simpson, and Lister; Turner, Leighton, and Millais; Wordsworth, Browning, Tennyson, and Swinburne, can have sunk so much below the standard of our semibarbarous forefathers of the thirteenth century as to be incapable of developing the Architecture we have into a true presentment of the highest aspiration of the nation and the ideal beauty of our time. No, it is that we have got into a wrong groove, and we must get out of it before Architecture ever again becomes a progressive Art, and can equal or surpass the glorious masterpieces of the past. The Renaissance men got Architecture out of the way of progress by casting themselves at

THE FEET OF THE ROMANS,

and proclaiming that Roman Architecture was perfection, and could not be surpassed, although they did some noble and some beautiful work; ever since all the architects of Christendom have only attempted to paraphrase some deceased Architecture. No one can deny that Architecture is the poetry of arrangement and construction, and we must have these at our finger ends before we can hope to progress, so that when the heaven-born genius comes he will have his tools ready. Genius to us is a causeless sport, to use the breeders' term, but, looking at its paramount importance to mankind, one would think it is of more importance for them to study the law of it than it is to improve the breed of racehorses or of sporting dogs. You are not to think that arrangement and construction alone will give us all we want, or else the marvellous works in iron of the engineers would have given it us. We have to study

THE METHOD OF EXPRESSION

that the masters of our Art have employed, to learn how we may express our thoughts in our own climate; and we have both to study and to strive, for that is the foundation of all improvement. We must, too, of necessity have change and novelty; different times, different surroundings, and different circumstances beget a different frame of mind. We cannot suppose that the delight at the lark's song affected the Greeks, the Romans, the mediævals, and people of the Renaissance exactly in the same way as it affects Englishmen of the nineteenth century. Homer and the Greek dramatists, Virgil and Horace, Dante and Chaucer were possibly poets superior to our own, but they do not come home to us like those of our own day. The loves and misfortunes of the past do not touch us as those of the present, and few of us can weep over the misfortunes of Hecuba, Iphigenia, Antigone and Dido. Our own poets, whom we look on as the greatest, Shakespeare and Milton, do not touch the inmost strings of our hearts like the poets of yesterday or to-day. Walter Scott saw that, and said the surrounding may be of any time you like, but the heroes and

heroines must be of to-day, or no one will take an interest in them. Our revivals of Classic, Gothic, or Renaissance may be very clever and very good, but no one of them ever caused the same emotion in us as it did in the people of its day. I know you will say people did care for Architecture in those days, and they do not now; but while there are buildings to be erected it depends mostly on the architect whether they are to be true and good, for he can always refuse to erect that which he feels is not true or not proper. I feel sure that there must be structural poets among that vast army of architects with which the country is now furnished, and though I feel it is rather an impertinence to suggest what a poet should do, I cannot help feeling that there are vast fields in England still untouched. One of the greatest merits of Athenian Architecture is that it takes the utmost advantage of the clear air and brilliant sunshine both in the main structure of its buildings and also in its mouldings; and, mind you, the materials are marble. We, since Gothic times, have never taken the slightest trouble with our mouldings, to make them tell their tale in the damp and dulness of our climate, and when one considers that Architecture has been defined as the art of moulding, this alone offers a large field. Another field, not altogether so untouched as moulding, is proportion, and that field is infinite. And here I speak of the infinity of good proportion, for there is a still greater infinity of bad ones. In a handful of flowering grasses, each one will give you a different and elegant proportion, and at least for iron we need not be confined to the classic proportions perfected by Vignola and Palladio. We have scarcely tried to bring cast-iron within the pale of Architecture,

although it has a capacity for almost every form, and is open to the magnificence of enamel. In fact, colour is almost untried, and, seeing the dust and soot of large manufacturing towns, it would add to their healthfulness, as well as to the raising of our spirits, if, in our damp and depressing climate, the fronts of our buildings ceased to be of dingy brick, and were

RESPLENDENT WITH GORGEOUS COLOUR,

and gleamed with gold. I know that there is a prejudice against the use of coloured and enamelled pottery (ironically called buildings of crockery), but since Nature has coloured all her work we need not be ashamed of doing so, and the gorgeous and monumental decoration of Darius's Palace at Susa should help to dispel this misconception. Let us hope that our new structural poets may give us a beauty and magnificence hitherto undreamt of; and that Architecture may again captivate the public, and be the boast and pride of the coming century. — The ceremony was concluded by a few felicitous sentences, uttered by Dr. Murray of the British Museum. He knew Mr. Aitchison, he said, as a friend to whom classical Architecture was dearer than it was to any man he had ever met. Mr. Aitchison had rendered good service to the British Museum in the reparation of pieces of ancient Greek Architecture which had come down to us, and it was always a great joy to the speaker, when in any difficulty, to have the ready and warm assistance of the President of the Royal Institute of British Architects. — The walls of the Council Room were lined with Mr. Aitchison's drawings, which showed how well-merited is this latest honour.



TARRAGONA CATHEDRAL: THE CLOISTER DOOR.



ROMANESQUE ARCADE BUILT INTO A HOUSE IN TARRAGONA.

Church Decoration in Ireland.

A RECENT ADVANCE.

A NEW church at Bray has just been completed. The interior decorations of the church introduce some features which are entirely new in Ireland. The edifice is in the later Romanesque style, when it was giving way to the Gothic and borrowing something from the lightness of the pointed style; it possesses more elegance and grace than are usually found in buildings in the Romanesque. Its ornamentation is handsome and appropriate, and in the richness of its material it is not surpassed. Even in its incomplete state the church presents an appearance of considerable magnificence. The height and proportion of the chancel arch, as seen from the front entrance, is very impressive, and its decorations produce a very striking effect. Not less impressive are

THE TRANSEPT ARCHES

opening into the nave. These are double arches resting on cylindrical shafts of polished red granite. The strength of the supporting column will be understood when it is stated that it is a monolith 14ft. in height by 2ft. in diameter. An unusual effect is here introduced. The central supporting shaft is accompanied by two slender columns, one on each side, which appear to support the heavy mouldings of the arch. These give an effect of lightness that is very uncommon. The Corinthian capitals are exquisitely carved. These are of bathstone, as are the moulded bases. The arches are richly moulded. There are six stained glass windows in the apse, lofty and with rounded heads and moulded arches. Each transept is lighted by a pair of similar windows filled with cathedral glass, and the side chapels have stained glass windows. The roof of the church is in pitch pine panelled. The chancel and passages will be laid in mosaic on a concrete bed, and the flooring under the seats will be in pitch pine. The walls of the chancel will be panelled, and the panels divided by green and black veined marble, pilasters will be filled with different coloured Italian marbles. The seven panels in the roof of the apse are filled with

OIL PAINTINGS ON CANVAS.

The painting on the centre panel is a figure of the Redeemer, and the six panels at the sides

contain figures of angels bearing musical instruments, each picture symbolising some particular feature in our Lord's life. The paintings are very fine, and bear close examination. The roof panels in the side chapels will be similarly filled with canvasses. The chancel arch and the spandrels of the side arches in the choir, as well as the spaces between the windows of the apse, are decorated in distemper. There is nothing like this in Irish churches, decorations of the kind having been invariably done in stencil work. It is done on what is technically known as "black and white," but to the ordinary observer it appears to be in chocolate lines on a gold ground. The effects of chiaroscuro are remarkably good, giving depth, roundness, and space. This is especially the case in the figures of Saints Patrick and Kevin, on the sides of the chancel arch, which stand out in such strong relief that most visitors who saw them believed them to be statues. The light and shade is very well managed. All

THE DECORATIVE WORK,

the oil paintings, and the distemper, was done by Signor Eduardo Buccini, a Neapolitan. He designed and executed the work himself. The church was designed by Mr. W. H. Byrne, architect, Suffolk Street, Dublin, and the building is being carried out by Messrs. Michael Meade and Son, Great Brunswick Street, Dublin; the marble work was divided among three Dublin firms. The high altar, by Mr. Early, of Camden Street, is in course of erection; it will be in keeping with the character of the church, and will be surmounted by a massive canopy or baldachino. The altars of the side chapels and the two smaller altars are in course of erection by Mr. Sharpe, of Great Brunswick Street. Mr. Pierce, of Great Brunswick Street, has the altar rails almost completed. The same firm is sheeting the panels in the apse walls with coloured marbles. The mosaic in the floor and passages is being put down by the firm of Oppenheimer, and the stained glass was supplied by Mayers, of Munich. The carving of the capitals already referred to was executed by Mr. De Groot, Dublin. The cost of the work up to the present is £17,000.

GREAT ART WORKERS OF THE CENTURIES.

LUCCA DELLA ROBBIA: ARTIST IN BAKED CLAY.

CLAY appears to have been one of the very earliest substances which humanity attempted to turn to artistic purposes. The remains of the *pfahlbauten*, or wooden dwellings of the prehistoric man, as dredged up from the mud of the Swiss lakes, reveal specimens of rudely-carved wood and bone, and of pottery quite as rude. The latter, chiefly pots or jars, are only approximately circular, having evidently been formed by hand, before the invention of the potter's wheel, which was known to the ancient Egyptians. But rude as they are, they are not devoid of a crude ornamentation. Portions of their surface are found to be covered with simple ornamentation of a "repeat" character, probably produced by puncturing the surface, while still plastic, with the end of a pointed stick. Later on, and coming down to the historic period, the researches of Botta and Layard reveal that the Chaldeans and Assyrians impressed letters of a wedge shape on tablets of clay, which formed the books of the period. The potter's wheel would appear to be a later invention, but as this is applied solely to the production of porcelain and pottery for domestic use, and not to the fashioning of clay into statuary or other terra-cotta work, we may pass it without further notice. The surface of baked clay is, of course, rather rough and mostly somewhat dingy in hue, while it is also very porous. To obviate these drawbacks there is but little doubt that the application of some kind of vitreous glaze was very early resorted to, and, as might have been expected, numerous fragments testify to the use of

ENAMELS AMONGST THE EGYPTIANS AND ASSYRIANS,

and glazing among the ancient Greeks and Romans. After the fall of the Roman Empire, the art of dealing with clay in the formation of pottery appears to have been lost for a season. It was, however, revived by the Mohammedan invaders of Spain, whose tiles of enamelled earthenware are to be seen in the Saracenic buildings of Seville, Toledo, Granada, and the Alhambra. The Spaniards subsequently acquired from their Moorish invaders the art of manufacturing enamelled tiles. This Hispano-Arabic ware is the prototype of the Italian "majolica," the enamelled ware of Italy, which dates from the twelfth century. This pottery was called majolica, from the island of Majorca, one of the Balearic isles, situated in



TARRAGONA: PHOENICIAN TOWER, FROM OUTSIDE THE WALLS.

the Mediterranean, not far from the coast of Spain, where it is supposed that enamelled earthenware was made at a very early date. In connection with this the following tradition is extant:—It is related that a pirate king or chief of Majorca, about the year 1115, was besieged in his stronghold by an army from Pisa, and being vanquished, the expedition returned to Italy laden with spoil, among which were a number of plates of Moorish pottery. These were, however, not imitated by the Italians until the fourteenth century, when specimens of majolica—so called from the country from which the pattern plates had been brought—were produced. These Italian examples resembled the Moorish ones in having arabesque patterns in yellow and green on a blue ground. About the year 1451 the manufacture had become celebrated at Pesaro, the birthplace of Lucca Della Robbia, the subject of this brief sketch, who has been

REGARDED AS THE INVENTOR

of this ware, although, as a matter of fact, it was made at Pesaro long anterior to his birth. The distinction which should be made, but which is often overlooked, is that the majolica is simply glazed earthenware suited for domestic purposes of either utility or ornament, but "Della Robbia" ware is glazed earthenware adapted for architectural decoration, especially external. But there are other points of distinction beside these. The Early Italian pottery has its surface embellished with patterns and designs in colours, but no relief effects are aimed at or secured. But, on the other hand, the examples of glazed terracotta of Della Robbia are generally in relief, more or less high, and consist very frequently of figures "in the round," or entirely detached from and independent of any background. In this respect these works have a greater resemblance to Palissy ware than to majolica, seeing that the former affects figures in high relief. Ordinary terra-cotta (or baked clay) has been a favourite architectural material in Italy for centuries before the birth of Della Robbia. This liking for brickwork was probably inherited from the Romans, as the Gothic race: of the north despised brickwork, and built cathedral and castle alike in stern grey stone. This more ancient Italian terra-cotta simply consisted in moulding brick earth into shapes somewhat more ornamental than that of the ordinary parallel or grammatic brick, and baking or burning it, clay being selected which would produce various lines or rather tints when burned. Concerning this earlier terra-cotta Architecture of Italy, which is considerable, the curious reader may learn everything from the exhaustive work of Leopold Gruner, of which an English translation has been issued. The merit of Della Robbia is, first, that he gave to the clay much

MORE ORNAMENTAL AND DECORATIVE FORMS

than any of his predecessors had dared to do, even to the extent, as we have previously remarked, of executing statuary in it, and, secondly, that he covered his works with a stanniferous or vitreous glaze of the brightest hues, an addition which, in regard to architectural terra-cotta, had previously only been utilised for the surface of tiles. Lucca Della Robbia may fairly be considered one of the Renaissance artists of Italy, seeing that, although the date of his birth is not exactly known, he flourished during the *cinque cento*, dying in 1481. He appears to have been an enthusiastic worker, as examples of all descriptions, in the glazed and coloured ware which bear his name, are numerous. After the death of Lucca Della Robbia, his nephew and pupil, Andrea Della Robbia, carried on the manufacture, his works being little, if any, inferior to that of his illustrious predecessor. Ware of this description has been more or less successfully produced recently by certain Italian, French, and English potters. Much of this consist of adaptations rather than direct imitations of the old methods; modern designs and modern forms being in many cases adapted with success. Cavallucci and Molinier observe in the commencement of their fine monograph on this great artist: "By the side of the three greatest sculptors of the first half of the fifteenth century—by the side

of Lorenzo Ghiberti, of Donatello, and of Jacopo Della Quercia, another artist merits a place. This artist is Lucca Della Robbia." Let us now glance very briefly at the main facts of

THE GREAT SCULPTOR'S LIFE.

He was born in the year 1388, it is supposed in the ancestral mansion of the Della Robbia, not far from the Church of St. Barnabas, at Florence. Like so many of the great Italian artists of the Renaissance period, Lucca Della Robbia was placed with a goldsmith to learn that business. But the boy's natural appetencies towards a higher range of art were too strong to be controlled. Beginning by modelling figures in wax, he soon became ambitious of rendering them in durable bronze or marble, and hence relinquished goldsmith's work for sculpture. Baldinucci tells us that his master in that new *métier* was no less a man than the famous sculptor, Lorenzo Ghiberti; but, however this may be, young Lucca Della Robbia made rapid progress in his new profession. He had scarcely attained the age of fifteen years when he was conducted, with some other young sculptors, to Rimini, in order to execute some figures and monuments for Sigismund Malatesta, lord of that city, who desired to erect in the Church of St. Francis a mortuary chapel to his lately deceased wife's memory. Lucca Della Robbia's next work (in marble) was for the Church of St. Mary of Flowers, at Florence. Soon after this he began to produce statuary in the enamelled terra-cotta to which his name has been attached, and did much work for the various members of the great Medici family. He died in 1480, at the age of ninety-two years. After the decease of Lucca Della Robbia the style of art which he had founded was, as we have mentioned, carried on by his nephew, as also by his brothers, Octavian and Augustine. The extant works of this great artist are numerous. As was to be expected, Italy—especially Florence—possesses

THE GREATEST NUMBER OF EXAMPLES.

But there are many in France, and even in our own country Lucca Della Robbia is by no means inadequately represented, as we shall presently see. As a general rule, the human figure forms the principal object in his designs, generally in high relief or the "round." Still, borders of fruits and flowers, canopies, draperies, &c., in the style of the *cinque cento*, are freely added as adjuncts. Lucca Della Robbia treats the human form divine with the freedom and grace which might have been expected from a sculptor. A certain excusable hardness, perhaps, characterise his earlier efforts, as is evinced in a figure of Christ on a *bas relief* on a tomb of Benozzo Federighi. Subsequently the mode of treatment became much more free, as is to be seen in the well-known Madonna and Child from an altar-piece, wherein a fruit border-canopy is introduced, and a replica of which is to be seen at South Kensington Museum. In the same place the visitor will find some excellent and characteristic specimens of the work both of the subject of this sketch and of his nephew Andrea, who both in artistic faculty and in technical execution was little his uncle's inferior, if any. Here will be found twelve circular medallions of enamelled terra-cotta, painted in blue, with representations of the agricultural operations of the year and with the

SIGNS OF THE ZODIAC,

which are considered to be by the hand of Lucca, and are conjectured to have formed part of the interior decorations of the writing cabinet of the famous Cosmo de Medici. An altar-piece representing the Annunciation, in high relief, of white enamel, without the addition of colour, but showing some tracing of gilding, is also there; as also a very important specimen, an altar-piece representing the Adoration of the Magi, and containing upwards of twenty figures, many of which are believed to be portraits of contemporaries of the sculptor. Some attribute this to Lucca, but it is more probably by Andrea, while in his uncle's employ. A very grandiose and imposing specimen is fixed against the wall in

the north arcade of the museum. This is a medallion, 11ft. in diameter, bearing the arms and emblems of King René of Anjou, father of Margaret, the wife of our Henry VI. It is believed that this was executed about the year 1543, being, of course, executed by the nephew Andrea, and was fixed at a considerable elevation on the external wall of a villa near Florence, in memory of a visit from the king. It was only a few years since removed from its original position, having, therefore, endured the action of the atmosphere for more than 400 years. We wonder how it would have fared in London! Another very beautiful example at the Museum is a full-length figure of the Virgin with the infant Saviour in her lap, under a border of fruit and flowers, attributed to Andrea by many. In the Chapel of the Medicis (or of the Novitiate) will be found a group, in which the Virgin is seen seated upon a throne, holding upon her knees the infant Saviour in the attitude of Benediction. Two angels hold a crown over the head of the Virgin. On the sides of the throne are St. John the Baptist, St. Lawrence, St. Francis, and St. Anthony of Padua, with two other figures of saints in *bas relief*. The pilasters which flank the composition are ornamented with handsome candelabra, and the frieze which surmounts it bears the heads of cherubs. On the base is an inscription. The work, which is a pleasing composition, is in white enamel on a blue background. It is generally considered to be the work of an artist of the school of Andrea Della Robbia, but whose ever it is, it is worthy to rank among the finest specimens, both for artistic composition and technical detail.

W. N. B.

THE new temperance hotel which has been built in Clayton Street, Newcastle, was recently opened. The building was designed by Messrs. Oliver and Leeson, and built by Messrs. J. and W. Lowery.

MR. A. E. SANDFORD FAWCETT, Local Government Board inspector, recently visited Mirfield to hold an inquiry respecting the Council's application to borrow £5800 for purposes of sewage and sewage disposal.

In the review of Bell's Cathedral series, which appeared in our last issue, the writer is made to say, in reference to Hereford: "Judging from the illustrations and speaking from personal memory, this tower is certainly not decorated, and its date is more probably 1300-1315." It should have read: "this tower is certainly decorated"—the point being that it could not very well be of the decorated period and at the same time be built in 1200-1215, as given in the book. As it appears to be of the decorative period, its date would more probably be 1300-1315. In the next line the word "perfect" should have been *profuse*.

In the case of John Good v. Corporation of Dublin, the plaintiff, who is a builder and contractor, claims £24691 4s. 3d., balance alleged to be due in respect of contracts for works executed in connection with alterations and improvements in Green Street, Court House, Dublin, and for extras and additional works, as well as for materials supplied for the defendant's use. There was also a plea of breach of contract. The plaintiff's case was that he carried out the works contracted for originally on the 15th February, 1893, with certain extra works incidental thereto, to the satisfaction of the city architect, the value of the work amounting to £2090. During the progress of the works the city architect ordered him (plaintiff) to make additions and variations and to execute extra works outside those specified in the original contract, the value of which was set down as £2629 14s. 3d., which, added to the £2090, made the total £4719 14s. 0d. Plaintiff received £2250, and he now sued for the balance.—The defendants brought into court £960 as full satisfaction for plaintiff's claim. They alleged that all alterations, deductions, and additions to the work provided for under that contract were to be valued according to the schedule of prices agreed upon, and that after a survey and valuation by the city architect, it was found that in addition to the amount already paid, the balance due amounted to £954 11s. 5d.—The case is at hearing.

A NEW BIRMINGHAM HOTEL.

FAMOUS COACHING INN DEMOLISHED.

WITHIN the last few months there has risen in Birmingham a terra-cotta building, whose style and proportions must have impressed all who have passed within sight of it. The building occupies the site of the old coaching inn bearing the title of the Hen and Chickens, which title has been given to the new hotel. The rest of the site, the portion formerly occupied by the stabling and coachyard, has been taken up by the Girls' High School of King Edward's Foundation, and the new hotel building—which is on ground leased from the governors—has been designed to form with the school building one harmonious pile. The building, which, with its equipment, has cost £20,000, is one of the loftiest in New Street, rising 60ft. above the street level, while the floor of the sub-basement is 25ft. below. The site has a frontage of 48ft. and a depth of 50ft., with an extension of 15ft. under the school premises for the sub-basement. The building rises to a height of five stories and a mansard. The architect (Mr. J. A. Chatwin) has not only made the most of the space at his disposal from a business point of view, but he has made a sterling addition to the architectural attractions of the city. The material, red terra-cotta, suggested Renaissance ornateness of treatment, but the details are so

FULL OF THE GOTHIC SPIRIT

—being, in fact, a development of the Tudor Architecture, the latest Gothic, of which the boys' school is so admirable a reproduction—that the two buildings viewed together present at once a harmony which suggests kinship and a contrast—aided by the difference in colour—which averts comparison. Between the two is the porch giving access to the girls' school; and an open space 30ft. in width above this allows a portion of the latter, designed by the same architect, to come into the general view of the hotel from this, the west, side. The porch of the girls' school is thrown back about 19ft., and the clear corner thus formed has given scope for a handsome feature of the hotel—an octagonal corner tower. This tower, which rises from the level of the first floor on a splayed pier of polished Aberdeen granite, is broken by a series of oriel windows, and is surmounted by a short but graceful spire. The upper portion of the façade towards the street is broken by a central series of projecting oriel windows, terminating with a decorative gable in front of the high-pitched roof. On the first three floors, towards both New Street and the boys' school, are bay windows. The rest of the windows and the parapet are of ornate design, with Gothic mouldings. The first story is faced with Aberdeen granite. The portion on the right of the principal entrance has a shop window frontage, and that on the left, which has been more quietly treated, has been taken as an extension of the bank premises.

A HANDSOME ARCHWAY AND VESTIBULE give access to the hotel and to the café, the latter in the basement. The hotel proper, entered through a lounge behind the vestibule, commences on the first floor, where, facing New Street, are the commercial-room and the drawing-room, partitioned by screens of glass and polished mahogany. Behind is the coffee-room, while further back are a smoke-room, serving-room, and lavatories, a centrally-situated office completing the suite on this floor; the second, third, and fourth floors containing the visitors' bedrooms, forty-eight in all, and each containing a fireplace. In the mansard are sitting-rooms and dormitories for the staff. The lighting of the hotel is a remarkable feature. The building is so far detached from its surroundings that from the first floor upwards three and a half sides have light and air space, while further lighting is afforded by an oblong wellhole, extending from the third floor to the roof. The result is that there is not a dark corner in the hotel. The oriel rooms, formed partly in the tower, are particularly pretty. In the rear, towards

the bank, is the main staircase, which is of granite, with a handsome wrought-iron balustrade, and is lighted by

WINDOWS OF CATHEDRAL GLASS.

The flats formed behind the roof-parapet towards New Street and the boys' school afford most extensive and interesting views, the greater portion of the city in three directions being spread out as a map before one. In the well is a passenger-lift traversing the nine stories of the building, and available for conveying visitors' cycles to a store provided for them in the basement. The hotel is not quite ready for occupation. The café in the basement was opened only a few days ago. It is approached from the vestibule by a wide staircase, the sides of which are filled in with bevelled glass. The basement extends partly under the footpath, from which it receives a considerable amount of light, the privilege of inserting these lights having been conceded by the Corporation in return for the surrender of the projecting porch of the old Hen and Chickens Hotel. The flight of stairs terminates near the wall towards the bank, and on the right is the smoke-room, occupying a rear corner of the basement and divided from the café by glass screens, the rest of the basement being occupied by tables. The floor is of ceramic mosaic. The white ceiling of enamelled iron is divided into bold panels with dentile enrichments, and is supported by handsome columns of Ross of Mull granite. The café, though its floor is 14ft. below the street, is amply lighted by pavement prisms, the glazed staircase, and the rear windows, which look out upon a wide area. The walls are covered with glazed Minton tiles and the greater part of the surface is light-straw colour, with figured panels in cream, and narrow upright panels in light green. The decoration of the frieze and dado has the oak-leaf for its leading theme, and its colour scheme ranges from straw-colour to russet. The artificial lighting here, as throughout the hotel, is by electricity. The buffet communicates by means of lifts in the wall with the sub-basement. In this, with a floor-level 25ft. below the street, are the separate kitchens for the café and the hotel, rooms for the attendants, store-rooms, laundry, motor-rooms, and other service departments. Every part of the building is ventilated by means of exhaust-fans driven by electricity, which also supplies the power for working the lift, &c. The contrast between the new hotel and that from which its name is derived is very striking, although it is only in keeping with the advance in public taste and private enterprise, which has taken place during the present century; for the building which first occupied the site of

THE PRESENT PALATIAL STRUCTURE

was more commodious and comfortable than it was beautiful. Indeed, a less attractive house would have been hard to find than the hotel as it was in the year 1800. And yet at that time the Hen and Chickens was esteemed an excellent example of hotel Architecture, the enterprising lady who had built the place announcing, with pardonable pride, in *Aris's Gazette*, of March 26, 1798, that it had been "built according to the plans of James Wyett, Esq., of London," an architect, we fear, whose name has not otherwise been handed down to posterity. But in those days it is evident that less regard was paid to outward appearances than to internal comfort; for attention is particularly directed in the advertisement in question to the fact that "the interior of the house is fitted up and furnished in the best manner, the beds, in particular, being all new and of the best quality." After all, this was the first essential in a place of entertainment "for man and beast," and it is very apparent that, despite its severely plain and unattractive exterior, the Hen and Chickens soon became a favourite resort, the interior of the place containing attractions which the outside lacked.

The Lord Mayor of London recently visited the City of London Asylum at Stone, near Dartford, for the purpose of laying the foundation stone of a new church.

A YORKSHIRE CHURCH REBUILT.

THE Church of St. Mary at Sledmere has just been consecrated. With the exception of the old mediæval tower, the whole of the former church has been rebuilt, and even the old tower has been renovated almost beyond recognition. It now furnishes a fine example of the fourteenth century English-Gothic style of Architecture, and the stone and wood carving of the interior being of a most elaborate and costly character, the new church will rank as one of the finest of the many fine churches erected as a result of the generosity of Sir Tatton Sykes in the Yorkshire Wolds. The tower was the only

PART OF THE MEDIEVAL BUILDING

left when, about the middle of the last century, it unfortunately gave way to a plain structure of no artistic merit. When about sixty years ago Sir Tatton Sykes decided to rebuild the church, the lines of the original church were discovered during the removal of the Georgian building. It was then determined to erect the new church on the same ground plan as the mediæval one, retaining the fourteenth century tower. The new chapel consists of a nave of five bays, with north and south aisles and a spacious chancel. The vestries are on the north side of the chancel, with the organ chamber over the choir vestry. The proportions of the church internally are remarkably good, and for its size the interior is unusually impressive by reason of quiet and restrained dignity. The style adopted is that of the best type of fourteenth century English-Gothic. The lofty nave arcade has

RICHLI MOULDED COLUMNS AND ARCHES,

with moulded caps and bosses. The aisles are vaulted in stone, the cells of the groins being filled with clunch, and the ribs and bosses being in the red stone throughout the interior. Nave and chancel roofs are carried from west to east at one unbroken level, and are massively constructed of oak, while the ceilings are panelled in oak, with finely carved bosses at the intersections of the main timbers and ribs. On the windows, tracery of the earlier type of the Glowing Decorated has been used, the great east window being a fine design in five lights. The chancel windows, entirely filled as they are with fine stained glass, recall in the breadth and simplicity of their treatment some of the best examples of the art. At present the nave windows are only temporarily glazed, but it is Sir Tatton Sykes's intention to fill these with stained glass similar to that in the chancel.

A FEATURE OF THE CHURCH

is the fine stone reredos at the east end of the north aisle, rising nearly to the height of the vault; while even more noteworthy is the elaborately designed wood-carved reredos immediately above the high altar, representing the Crucifixion, with the Virgin and St. John and the Apostles on either side. In fact, the whole of the woodwork must be regarded, both in design and execution, as amongst the finest of modern examples. The altar frontals and hangings are of great beauty, and the floors of the church are of a softly tinted Irish marble. The tower has been carefully restored, and a parapet added to the original design. On the parapet are shields bearing the arms of families that have at different times been connected with the estate. The whole of the exterior of the church is executed in Whitby stone, and is remarkable for

ITS SIMPLICITY AND STATELINESS.

Mr. Temple Moore, of London, was the architect, and the whole of the work has been carried out under his supervision. The contractors for the work were Messrs. Thompson, of Peterborough, whose representatives have been Mr. Geo. Mills and Mr. J. Baker. The stained glass has been supplied by Mr. H. B. Milner, the frontals for the high altar and the hangings by Messrs. Watson and Co., the frontals for the side altar by the Horbury Sisters, and the metal work by Messrs. Hardman. The marble flooring is from the works of Mr. R. Collis, Kilkenny; and Messrs. Wise and Co., Leeds, constructed the organ.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
June 29th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slat; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

SOME time will yet elapse before the public can visit the old State Rooms at Kensington Palace. The officials of the Office of Works under Sir John Taylor have found more repair necessary than was anticipated. The floorings were in a rotten condition. All the beams have been carefully examined and new oak beams are being put in. Sir John Taylor, who is superintending the work, has just been appointed Consulting Surveyor to the Office of Works.

THE companionship between Sir Edward Burne-Jones and William Morris has not been broken for long. It was one of those ideal friendships between great men, formed in youth and maintained to the end. When the pressure of work and outside interests began to keep them out of the continual companionship of the days when they lived together, they made a compact that at least once a week they would keep a few hours sacred for one another. Every Sunday morning, accordingly, they reserved for this purpose; and always breakfasted together on that day, Morris walking over from his house at Hammersmith to his friend's house at Fulham. It was not until Morris's last illness, says the Westminster Gazette, that this custom was broken.

THE memorial to the late Suffragan Bishop of Coventry, Dr. Bowlby, which was unveiled last October at St. Philip's, Birmingham, took the form of a very handsome window designed by Sir Edward Burne-Jones. The distinguished painter was a native of Birmingham, and was born in a house almost under the shadow of St. Philip's Church. In the beautification of the sacred edifice he took great personal interest, and the church now possesses a complete set of windows designed by him. These represent "The Nativity," "The Crucifixion," "The Ascension," and last of all, "The Judgment Day." It is this latter which was dedicated as a memorial to Bishop Bowlby. The cost of the work was £770, and Sir Edward Burne-Jones, besides returning his cheque for £250 for the design, personally superintended its execution at Burton Abbey.

AN archaeological discovery of the highest interest has just been made at Tongres, province of Hasselt, where excavations in one of the tumuli at the intersection of two Roman roads have brought to light a sarcophagus containing the remains of a Roman artist of the third century. With the remains were found a large number of urns, vases, and miscellaneous trinkets; but perhaps the most interesting item were the bronze cups containing remains of the artists' colours, which will, it is hoped, throw some light on the process of contemporary painting.

NORRIS CASTLE, whose beautiful ivied towers are familiar to every yachtsman on the Solent, was recently offered for sale at the Mart, Tokenhouse Yard. The representative of Messrs. Walton and Lee, who were the auctioneers for the estate, observed at the opening of the sale that there were two kinds of estates: with regard to the first, any praise would be an exaggeration; and with regard to the second, no praise would be too great. He intimated that the second of these attributes appertained to Norris Castle, and he had been specially asked not to exercise his descriptive powers. These, nevertheless, appeared to be considerable; and he went at some length into the history and advantages of the beautiful old place, built last century by Lord Henry Seymour, and for some years the home of the Queen while she was Princess Victoria. But all his eloquence failed to extort a higher bid than £40,000, and the estate was withdrawn.

THE Church of St. Helena, Austerfield, to which we referred in a recent issue, was reopened some days ago, after a careful restoration from designs by Mr. Hodgson Fowler. Many objects of great antiquarian interest have been disclosed during the recent restoration. A memorial brass is shortly to be inserted in the new aisle in memory of William Bradford, who was a native of Austerfield. The brass will contain the following inscription: "This Aisle was built by the Society of Mayflower descendants and other Citizens of the United States of America in memory of Governor William Bradford, who was born at Austerfield, and baptised in this church on the 19th March, 1589. 'He was the first American citizen of the English race who bore rule by the free choice of his brethren.'" The date of the church is about 1130. With the exception of windows of the fourteenth century, and of the addition of the north aisle and a new vestry, the original Norman structure remains intact.

ACETYLENE gas, one of the latest products of practical science, is receiving the honour of an exhibition for its own special behoof at the Imperial Institute this season. The new gas, of which great things are anticipated, and, as far as can be seen, not unjustly, is said to have fifteen times the lighting capacity of coal gas, while it has the advantage over electric light of possessing greater penetrative powers in thick and foggy weather. Hitherto the progress made by the gas has been small, owing to the difficulties created by the deposit of carbon constantly accumulating on the burners and blocking up the orifice, causing the gas to smoke and vitiating the atmosphere. But this defect has now been overcome by the admixture of a small percentage of carbonic acid gas with the acetylene, which has produced a chemical change in the gas, and vastly improved the light. In its present state the gas is said to be, when burning, perfectly odourless, free from smoke, and devoid of heat. If allowed to escape it gives out a pungent, disagreeable smell, but this is rather an advantage, since it enables the householder to detect at once when there is anything wrong with his apparatus or fittings. In regard to cost, there are varying estimates, but it would appear that there is good ground for saying the illuminant is cheaper than coal gas if the amount of illuminating power is considered. Whether this will be entirely satisfactory to the householder is an open question. If he has been used to, say, a 16 candle-power light, he may not care to pay double or treble for a burner of even five or six times that capacity. The gas, however, has such unquestionable advantages that it cannot fail to make headway sooner or later.

ONCE again an exhibition of decorative hammered and repoussé work in silver, by Mr. Gilbert Marks, is being held at 80, Aldersgate Street by Messrs. Johnson, Walker, and Tolhurst. The articles shown are varied in form, and in the ornament bestowed upon them, including many of utility, in addition to others of purely decorative value. A feature this season has been made by Mr. Marks of caskets for the toilet table or for cigarettes, and some half-dozen of varied sizes are shown,

wild flowers being employed in the ornament. A fine loving cup, the body of which is decorated with light sprays of the wild rose, is a noticeable object in the collection, and would be a welcome addition to the plate of one of our City guilds. To accompany the casket referred to above there are brush trays, pin trays, and silver brushes, each of which has received some dainty decoration at the hands of the craftsman. Amongst the larger pieces are several rose-water dishes and bowls, one of the latter being especially good in treatment, the flower chosen being the king cup, or marsh marigold. The work on this bowl is in high relief, and has evidently received the utmost care, the modelling of leaves and petals being very accurate and effective.

At a meeting of Aberdeen University Court it was reported that the members had had before them a report by the Sites and Plans Committee, with accompanying plans and estimates, showing the erection of a wing to the south of the existing Marischal College buildings, and facing Broad Street, which would accommodate the Administrative and Law Department, with either the Library or the Wilson and Grant Bay Museums, and the extension eastward along Longacre and the accommodation for the departments of Natural History and Physiology. The Committee reported to the Court that, in their opinion, the proposed extensions would suitably provide for the remaining requirements of the University, and would form, with the retained Greyfriars Church, if properly restored, an effective scheme architecturally which could be carried out at a reasonable cost. The Committee accordingly recommended the University Court to agree provisionally to the proposal of the Town Council that Greyfriars Church should be retained and restored, provided that the anonymous donor at whose suggestion it was formerly resolved by the Court to endeavour to preserve the fabric of Greyfriars, but use it for academic purposes, would continue his offer of £10,000 to the extension scheme under the new proposal. The recommendations were agreed to.

ALCESTER wants a new infirmary, but Alcester does not quite know what sort of building to erect. After submitting plans to the Local Government Board, and having them sent back for certain suggested alterations, the Board of Guardians, when the alterations have been carefully made, reject the plans as being not quite after their own heart! A report in a local contemporary states that the Infirmary Building Committee, having had before them the plans for the new workhouse infirmary as amended by Mr. Ward, the architect, in accordance with the suggestions made by the architect to the Local Government Board, reported to the Board of Guardians that the architect appeared to have adopted those suggestions in every particular, and the plans were now ready for the final approval of the Local Government Board. In addition to a great saving in the annual expenses of administration by these alterations, a further saving of about £450 would be effected in the initial outlay, and the committee, therefore, recommended that the plans be adopted.—A lengthy discussion followed, in the course of which Mr. J. Fisher said he thought if the corridor and lying-in ward were dispensed with, there would probably be a saving of £700 or £800.—The Chairman pointed out that the Local Government Board would not pass the plans if this alteration was made.—Mr. C. Hodges moved that the committee's report be adopted, and the plans sent to the Local Government Board. The Rev. A. H. Williams seconded.—Mr. Fisher considered the plans too elaborate, and moved that they be not accepted.—Mr. E. T. Blake seconded the amendment, which was carried by fourteen votes to twelve.

THE result of the appeal recently issued for subscriptions to enable Messrs. Willis, the organ builders, to carry on the work of the grand instrument in Gloucester Cathedral from the point of equipment where they were compelled to stop at the time of the additions

and restorations nine years ago through want of funds, has been so satisfactory that it has been decided to commence the additions at once. The estimate for the cost of the stops necessary to bring the organ of Gloucester Cathedral into line, as it were, with instruments in other cathedrals and abbeys in the land is £650. The organ builders left the space now to be filled provided for, and so in the matter of structural work there will be no delay. The additions so provided for are:—Fourth Manual: Tuba, Clarinet, Orchestral, Oboe and Flute. Swell Organ: Contra Fagotto. Choir Organ: Cor Anglais. Pedals: Principal and Ophicleide. There is nothing here but what may be said to be absolutely necessary for the proper equipment of a cathedral organ. Before the additions are made it will be necessary to give the organ a thorough cleaning.

THE concession made by the Plymouth Town Council to the local architects who were invited to send in competitive designs for the buildings to be erected in Tavistock Road and Tavistock Place did not meet the whole of the grievances. It was decided to increase the premium for the best design from £150 to £250. The architects replied to this by an expression of regret that the main point of their objection to the condition had not met with a more favourable reception. The town clerk was thereupon requested to ask whether, if the Special Works Committee were prepared to consider the suggestion submitted, the architects would waive their requirements in relation to the appointment of a professional assessor. To this the architects replied unanimously declining to compete unless a professional assessor was appointed. The committee then resolved that the views of the architects be met to the following:—A professional assessor to be agreed to, provided the plans become the property of the Corporation, the premium to the successful architect to be £250, and competitors to be instructed that the rents to be catered for are to be about £100 per annum, with the exception of the two end sites, which are to be specially treated. The remuneration of the assessor is to be fifty guineas. The town clerk was to obtain the views of the architects upon the offer, with a view to obtaining the sanction of the committee to the selection of an assessor.

THE work that is being carried out for the Marquess of Bute, under the direction of Mr. C. B. Fowler, F.R.I.B.A., in marking the grave of Llewelyn Bren in the restored floor of the Greyfriars Monastery Church at Cardiff, and that of Bishop Ecclescliffe in the floor (also restored) of the Blackfriars Monastery Church, is making good progress. In the excavation of the Greyfriars floor a large number of remains of broken stonework used in the original building were unearthed, and these remains have enabled Mr. Fowler to trace out the form of Architecture employed. It is intended to erect a small building near the Blackfriars Church as a museum for the storage of all these relics. At the Corpus Christi festival at Cardiff Castle a few days ago the altar was erected on the very site of the old high altar of the Blackfriars Church, and the tomb of Bishop Ecclescliffe, with its new memorial stone, finds a place within the chancel in front of that altar. In the Greyfriars Church the new tile floor, after the original design and in the colours of the order, has been laid by Messrs. Godwin and Son, of Lugwardine, near Hereford. The memorial stone for Llewelyn Bren, like that over the remains of Bishop Ecclescliffe, is of the very hardest product of Portland, and both memorials were executed by Mr. Clarke, of Llandaff, under Mr. Fowler's supervision. Lord Bute has carried out a useful work in thus preserving to history and marking for futurity the resting places of two great men.

THE Chancellor of the diocese of St. Albans held a Court at the St. Albans Cathedral, at which an application was made on behalf of Lord Aldenham for a faculty to be decreed authorising him to complete the work of restoring the cathedral "high altar

screen." Lord Grimthorpe, it was stated, had had notice of the citation, but he had not entered an appearance, and the application was unopposed. In giving judgment the Chancellor said that when he decreed the citation he thought it right, having regard to the exceptional position which Lord Grimthorpe occupied with regard to the cathedral, to order that the petitioners should give notice to him that the citation had been issued. In 1890 there was a suit about this screen in this Court, Lord Grimthorpe opposing a faculty sought by Lord Aldenham. The suit was a very remarkable one, and it was described by Sir Francis Jeune at the time as being almost unique. Both gentlemen sought to find out who would be allowed to spend the most money on this cathedral, and Lord Grimthorpe was successful. As to the present application with regard to the proposed representation of the Resurrection he need not say anything, and as to the intention to complete the central group on the screen to represent the Crucifixion the only question he had to consider was whether there was anything in it which would be likely to lead to superstitious reverence being paid to the figure of our Lord. There are many possibilities, but it was not to those the Court should look. The probabilities alone should be considered, and he could not see any grounds for supposing that superstitious reverence was likely to be paid to the central figure of the group. It was most material to bear in mind that any adoration of the crucifix was now in the Church of England unlawful. There was nothing in the present instance which led him to the conclusion that superstitious reverence was likely to be paid to the central figure, and he would, therefore, grant the faculty asked for.

AN important discovery has just been made at Peterborough Cathedral. During the underpinning of the north-east corner of the Eastern Chapel the workmen came across the Saxon ditch. The foundations of the Eastern Chapel were found to be partly built on the ancient Saxon wall, which was a great surprise, as it was considered that the building was in the vicinity of the old Saxon ditch which bounded the original Medehamstead, or ancient Peterborough, and that the area of the ditch accounted for the sub-idence. The discovery just made, however, settles the question as to the direction of this ancient waterway, and even of its locality. At the depth of about 12ft. the rock was found to have been cut right through to the underlying clay in a direction running about east and west. But the most remarkable feature of it is that instead of there being evidences of mud or of any deposit of an alluvial character, the ditch was seen to contain a layer of about 2ft. of peat ashes. The ditch was found to empty itself through a well-defined pass in the Saxon wall; it evidently ran in a line with the present wall of the church.

THE members of the Lancashire and Cheshire Antiquarian Society recently visited Wardley Hall, Worsley, which has lately undergone a complete restoration. Mr. G. C. Yates (who led the party) read a paper in which he gave some historical account of the old building, and pointed out its more interesting features. When the work of restoration was commenced, he said, it soon became apparent that there was much more of interest in the house than was at first supposed. In all cases where there were beautifully panelled ceilings, formed of massive and richly moulded oak beams, it was found that the most prominent of the mouldings had been roughly chopped off, and on or below them had been nailed laths, and the whole hidden by plastered ceilings. Where the larger beams projected—all being of oak—they had been at some former period hacked over and covered with plaster, their sections being converted into plain rectangles, with chamfered edges, and (as if to add insult to injury) these "improved" beams had been painted and grained in imitation of oak. The fine old staircase had been similarly treated. The whole has now been restored as far as possible. Visitors to Wardley Hall, Mr.

Yates said, will probably miss some of the black and white work with which they were so familiar, but as all that on the north front was sham—being painted plaster, and not timber work at all—it was thought best not to replace it, but to restore the old brick walls which it covered. The restoration, though a costly matter, has resulted in saving from ruin one of the most interesting old houses in Lancashire. The skull—popularly supposed to be that of Father Ambrose—which has been preserved at Wardley Hall for generations, was, during the progress of the work, placed in an iron safe, and afterwards reinstated in the niche upon the staircase, where it has so long lain, protected with glazed doors.

AT Messrs. Branch and Leete's Hanover Rooms, an interesting collection of ancient furniture, silver, and art objects is now on view. The majority of the exhibits come from the Weber-Chapuis Museum at Verviers, in Belgium. They comprise an unusually large selection of early French, German, and Flemish pieces of cabinet work, some extremely interesting 13th century ivories, and silver and ivory casket work of a somewhat later period. The china includes typical specimens of Dresden, Sevres, Palissy, and Old Chelsea, and some rare porcelains. Old English silver of the Queen Anne pattern is much in evidence amongst other attractive pieces of plate, one silver-gilt hanap being a fine example of repoussé work at its best. Ivory miniatures, Japanese sword guards, and specimens of antique arms and armour are present in this varied collection, which also contains a few oil paintings and engravings by distinguished masters.

THE new buildings at New College, Oxford, facing Holywell, have been designed by Mr. Champneys, and are practically a continuation of the buildings known as Pandemonium. The task of joining these lighter buildings on to the massive and towering structures of Sir Gilbert Scott has not been an easy one. A new tower and entrance lodge have been built in memory of Mr. Robinson, late Bursar of New College, and this tower serves in some measure to reduce the hideous altitude of the Gilbert Scott buildings. Although the new buildings compare very favourably with the other additions that have been made within recent years to the Architecture of Oxford.

OF the many improvements that are in hand or are spoken of at Felixstowe—which include a projected pleasure pier, a couple of huge hotels, a promenade concert ground near the Spa, and the commodious shelter on South Beach—the most important is that which has been carried out by the Great Eastern Railway Company. Sir William Birt, the general manager, realising that Felixstowe has a future as well as a present, has advised the directors to such purpose that on July 1 the reproach which has hitherto existed with regard to the railway communication from London will be removed. The sensible course has been adopted of constructing a terminus for the branch line from Ipswich nearer the centre of the town than either of the stations which has hitherto sufficed. In order to do this it has been necessary to construct about two miles of railway, which will connect by one curve the new terminus with the little line to the steamboat pier, at which the Belle steamers as well as the G.E.R. boats call, and by another loop continue the Ipswich line to Felixstowe direct. The Great Eastern directors have not been content with giving the new station a pleasing elevation of red brick, with Bath-stone dressings, red-tiled roofs, and a central dome, which is already called, from its shape, the "lighthouse," but they have also provided the public with a splendidly-lighted "circulating area," or promenade, 92ft. broad and 84ft. long, under cover.

THE annual meeting of the Society for the Protection of Ancient Buildings was held the other day in the meeting room of the Society of Antiquaries, Burlington House, under the presidency of the Bishop of Bristol. Lord

Balcarras moved the adoption of the report, and, in doing so, said that he thought the society had done a great deal during the last year. It would be almost a truism for him to point out that many interesting and valuable buildings of bygone times had been restored, or, in other words, destroyed, without the efforts of the society being able to effect any protection whatever; but they must not relax their vigilance and energy for a moment. If they could persuade more persons to act as local correspondents of the society it would certainly save the society much trouble, and in every way expedite its proceedings. Mr. Lovibond seconded the motion, which was agreed to. Mr. H. E. Luxmoore read a paper on "Our Purposes and Prospects." The Bishop of Bristol, in moving a vote of thanks to the lecturer, said that they had to face the fact that in England we were terribly crowded. In former times there was more room for building; now, time after time it was brought to his notice that a larger number of persons had to be got on to a given area than before, and that could only be done by increasing the number of stories in a building. The higher they went on a certain frontage the worse and worse the effect usually was. He must say, however, that when they went into the City of London on a fine Sunday afternoon, when they could really stand and look at things, they found out that beautiful buildings, very striking buildings indeed—buildings that would be no discredit to Venice or to Florence—had been put up in the City of London in quite recent times, and many of the architects of those buildings did not get the credit for their work. That was an answer to a good many of the criticisms with regard to the removal of old buildings. At the same time he expressed the fullest sympathy with the objects and principles of the society.

In consequence of the ever-changing level of the Italian coast, which, writes a Venice correspondent, seems to rise and fall during the centuries like a tide, places which a few hundred years ago were on the seaside are now miles away inland. Ravenna, for instance, lies a good eight miles in shore, and its old quays are still to be traced under the accumulated travelled earth, and its once famous lighthouse dominates wide-spreading waves of green vegetation instead of blue water. Adria, again, which is but a few miles away from Venice, beyond Chioggia, once an important Etruscan city, with its great harbours and arsenal, and which gave its name to the Adriatic Sea, is now but a tiny country village, over seventeen miles from the coast. Halfway between Adria and the sea, just behind the marshlands and lagoons which form the estuary of the Po, lies another village, Donada, which is a great place for pottery and brick-making.

LAST November one of the manufacturers had occasion to reconstruct his furnaces, and while digging out the ground for the foundations, he came upon a large number of objects connected with shipping, such as rings, pulleys, bolts, and rudders, and then upon the whole hull of an ancient ship. For a time giving up thought of his furnaces, he continued his work of exploration, in connection with the authorities, and shortly came upon another complete hull. Naturally much interest was created. The Minister of Marine sent experts to examine the ships, and they were found to be in admirable preservation, hermetically sealed from the air, as they had been, in the deep peaty deposit in the undersoil. They were carefully removed and placed in the atrium of one of the chief houses of Donada for fuller examination by the Commission of National History. The Commission reported them to be most interesting specimens of early fifteenth century construction, and the Government has therefore ordered them to be preserved in the Arsenal of Venice. There is an intricate network of canals running through the wide-spreading marsh-lands that extend all the way to Ravenna, so it is possible to bring the hulls to Venice without entering the Adriatic and running the risks of a possible storm.

THE LIFE-WORK OF WILLIAM MORRIS.*

By F. S. ELLIS.

(Continued from page 358.)

IF anyone desires to test for himself the truth of what I have advanced concerning cathedral glass, I would recommend an inspection of Wells Cathedral by way of example. The glorious east window remains as a witness against the monstrous crudities and platitudes that surround it on every side, to the utter degradation of a noble branch of ancient Art. Mr. Lewis Day, in his most valuable and interesting paper on the "Making of a Stained Glass Window," tells us how the modern science of chemistry has enabled artists to come at all the component parts of ancient stained glass. In like manner a chemist can analyse the finest wine, and set out all its component parts, but putting them together will not make the wine, sun and soil and atmosphere are left out of account; and so in like manner, when we have every material and method that a mediæval glass painter used, we lack the simple unquestioning belief which imparted life and spirit to his work—the body may be there but the soul is wanting—it is but imitative work. It is impossible to speak of the life-work of William Morris without mentioning his poetry and other literary work. It is true, on the other hand, that I can speak of no part of his work, or of his doings, without speaking of his poetry, for verily his whole life was a poem, in its highest sense; his aspiration for the good and beautiful in Art, his love of and entire devotion to Nature, his abounding hatred of cruelty, injustice, robbery and wrong, his whole-hearted identification of himself with the cause of the oppressed, his recklessness of the consequences to himself in his endeavour to carry out his ideals, his contempt for worldly honours; all this made

HIS LIFE A POEM

in itself, and as such, I feel confident it will come to be understood, when the mists that envelope us are cleared away, and he and his work are viewed by unbiassed eyes in clear perspective. But to speak specially of his literary work, when we call to mind that his metrical writings amount, at a rough computation, to more than 150,000 lines, and add to them those wonderful prose poems which were the product of his later years, we can scarcely fail to be altogether astounded, not only at the fecundity, but also at the untiring industry of the great genius who gave to the world this glorious treasure of poetry of the highest order

AMIDST THE DISTRACTIONS OF COMMERCIAL BUSINESS,

the study of a dozen different handicrafts, the production of innumerable designs for wall-papers, tiles, textile fabrics, and carpets, the direction of a printing-press, and the carrying on of a political propaganda. Yet I venture to aver that none of his verse bears signs of haste or carelessness. I have in my possession a large mass of his original MSS., which bear witness to the care with which he would try his wings until he got fairly into flight; he would freely correct, alter, and rewrite, till he had satisfied himself with his work: that done and fairly copied, he rarely made any further alteration, and I should doubt if any poet returned cleaner proofs to the printers. His

REVISION OF SUCCEEDING EDITIONS

was of the slightest—rarely did he alter a single word. But this did not arise from indolence, but from his faculty of seizing the aptest word or most felicitous phrase with little effort, and, once adopted, he was ultimately satisfied with it. Morris's wealth of diction can scarcely fail to strike any reader of his works who knows what that phrase means. So completely was he master of his mother tongue, that he had not an English

dictionary among his many books until, about a year before his death, he was induced from curiosity to buy "Skeat's Etymological Dictionary." Words seemed to well up in his mind as he wrote, as water-bubbles from a spring. So great was his facility of composition on occasions, that when the tide once flowed it seemed to rush on irresistibly. It is notably on record that, when the story of Jason had taken firm hold of his imagination, he wrote continuously in one day, beginning at four a.m., 750 lines. In turning over some of his MSS. lately, I came on a memorandum made by him on the foot of a page, "310 lines after ten p.m." It is no unusual thing to hear people affect the opinion that quantity comes before

QUALITY IN MORRIS'S POETRY,

an allegation that I do not hesitate to traverse. I never yet put one of these cavillers through his facings, as to how much he knew of the work he was carping at, that I did not succeed in running him down to the confession that his knowledge of the poet he criticised was confined to reviews and extracts. Some one, as rash as he was ignorant, lately ventured to say in print somewhere that the author himself held but lightly by his work of "The Earthly Paradise." Never was a more unfounded statement. Had there been any ground for it, the production of the sumptuous edition of the book printed at the Kelmscott Press would assuredly not have been one of the author's cares during the last months of his life. The great northern epic of "Sigurd the Volsung," must, I think, be looked upon as

MORRIS'S SUPREME POETIC TRIUMPH,

and he certainly regarded it in that light himself. It is not only the masterly way in which he has evolved the grand and stately story from the ancient legend; but the pathos, passion, and nobility thrown into it, make the reader feel that here he is truly face to face with one of the world's great poets. The splendid roll of the rhythm, which never for a moment flags, and the masterly manner in which the language is handled, cause one now and again to pause in admiration, and to wonder at the unexpectedness yet perfect aptitude of the phraseology; the words seem to spring forth, as it were, by magic, and every line palpitates with vigour, life, and light. Morris, in this great poem, seems to wield the English language as Sigurd wielded the Light of the Branstock, the gift of Odin, every word and sentence coming home

WITH IRRESISTIBLE POWER AND MIGHT.

When the book was published, in 1878, though the grandeur of it was acknowledged and recognised by most of the reviewers of the day, the critic, whoever he may have been, who at that moment was powerful at the Times office, put a studied insult upon it by coupling it with a volume of verse by a poetaster which had appeared about the same period. It mattered not: the book was, and will remain, a glorious contribution to the main stream of

"Poetry's unfailing river,
Which through Albion winds for ever."

Where, in the whole range of English verse, shall we light upon nobler numbers than in the pathetic description of Sigmund delivering the dead body of his son, Sinfliotli, to Odin, after he had been poisoned by his stepmother Borghild?

"Then he lifted him up from the hall floor and bore him on his breast,
And men who saw Sinfliotli deemed his heart had gotten rest,
And his eyes were no more dreadful. Forth fared the Volsung child
With Sigay's son through the doorway; and the wind was great and wild,
And the moon rode high in the heavens, and whiles it shone out bright,
And whiles the clouds drew over. So went he through the night,
Until the dwellings of manfolk were a long while left behind.
Then came he unto the thicket and the houses of the wind,
And the feet of the hoary mountains, and the dwellings of the deer,
And the heaths without a shepherd, and the houseless dales and drear.
Then lo, a mighty water, a rushing flood and wide,
And no ferry for the shipless; so he went along its side,
As a man that seeketh somewhat: but it widened toward the sea,
And the moon sank down in the west, and he went o'er a desert lea.

* A paper read before the Applied Art Section of the Society of Arts in May last.

But lo, in that dusk ere the dawning a glimmering
over the flood
And the sound of the cleaving of waters, and Sigmund
the Volsung stood
By the edge of the swirling eddy, and a white-sailed
boat he saw,
And its keel ran light on the strand with the last of
the dying flaw,
But therein was a man most mighty, grey-clad like
the mountain-cloud,
One-eyed and seeming ancient, and he spake and
hailed him aloud:
'Now whither away, King Sigmund, for thou farest
far to-night?'
Spake the King: 'I would cross this water, for my
life hath lost its light,
And mayhap there be deeds for a king to be found on
the further shore.'
'My senders,' quoth the shipman, 'bade me waft a
great king o'er,
So set thy burden a ship-board, for the night's face
looks towards day.'
So betwixt the earth and the water his son did
Sigmund lay:
But lo, when he fain would follow, there was neither
ship nor man,
Nor aught but his empty bosom beside that water
wan,
That whitened little by little as the night's face
looked to the day.
So he stood a long while gazing and then turned and
got him away:
And ere the sun of the noon-tide across the meadows
shone
Sigmund the King of the Volsungs was set in his
father's throne,
And he hearkened and doomed and portioned, and did
all the deeds of a king.
So the autumn waned and perished, and the winter
brought the spring."

Never did any poet write more genuinely
and spontaneously from inspiration, without
giving one moment's consideration to the
question whether what he thought of writing
would be likely to find acceptance with the
public, or, in other words, whether it would
sell. He wrote for Art's sake, and for Art's
sake only. I well remember that in early days,
some thirty years ago that is, he used to be
curious as to how his verse would be received,
but of later years he was wisely impervious to
hostile criticism, though he was always grate-
ful for intelligent appreciation. He was, in
truth, an able critic of his own work, and was
happily confident of future fame. Inwoven as
it were with Morris's life work, was a happy
circumstance which for twenty-five years
helped to give to it colour, vigour, and happi-
ness, and contributed in no small measure, I
venture to think, to the value and beauty of
all he set his hand to. This was the acquisi-
tion, as a dwelling, of

THE ANCIENT MANOR HOUSE AT KELMSCOTT,
in Oxfordshire. Scarce could the magic wand
of a magician have called into being a home
more suited to his taste and sympathies than
this secluded spot, close to the stream whose
gently sloping uplands, flower-bearing banks,
willowy nooks, rush or reed grown reaches,
clear shallows, and swirling eddies, are so ex-
quisitely pictured in his poems. The grey-
weathered walls of the stone built gabled
house, surrounded by an old garden with a
moss-grown orchard and a meadow close hard
by, made it the very place of retreat he had
longed for. He once told me that when he first
went to look at it he found that it exactly
resembled a house he once had a vision of in
a dream.

TO ESCAPE TO KELMSCOTT,

from the smoke and turmoil of London, when
he had any special work, literary or graphic,
on hand, was of the greatest benefit to its
successful accomplishment, or to go thither
and throw off work altogether for a short
season occasionally, was the most grateful re-
freshment to his mind. But even while his
spirit was filled with the great epic of the
North, his eyes had been pasturing on the
rich colour and inimitable designs of the
East. So far as my memory serves me, it
was about 1875 that his mind was specially
fired by the magnificence of the ancient
oriental carpets which were just then im-
ported in large quantities. He bought a
great number of choice examples, and set
himself to study not only the scheme of de-
sign and colour, but also the method of
manufacture.

HIS STUDY OF DESIGN,

whether in this or anything else, did not mean
crude and ineffective copying of original
patterns, but as in literature his style is no

servile following of ancient form, but an
assimilation of so much as is good and valuable
in it, so did he assimilate the manner of the
ancient traditional patterns of the East, and
thence produce thoroughly original and har-
monious work, graceful in line and beautiful
in colour. It was no light matter to begin
such an undertaking. There was no ware-
house whither he could go and buy such wools
as he needed ready to hand; he must dye them
himself, and with an enterprise and unwearied
determination rarely equalled—never certainly
by one who was also a great master in song—
he set himself to learn the craft and practice
of dyeing, first carrying it on in the cellars of
his dwelling house at Queen Square, and sub-
sequently at the works which he established
at Merton. Having thoroughly mastered the
art himself, he soon set others to work, with a
result that had but one fault, namely, that the
work he produced was

TOO ABSOLUTELY GOOD AND PERFECT

to meet with general acceptance in the more
costly forms, but nevertheless the Buller's
Wood and the Peterhouse carpets, and many
another, will for long years to come testify to
the success and excellence of the manufacture
while the simpler webs have been distributed
far and wide to the brightening of many
hundreds of homes. Another great project
which he carried out to its fulfilment with
perfect success, as you may see by the splendid
examples exhibited this afternoon, was the
restoration of the manufacture of tapestry as
a fine art in England, where in old days it had
rivalled the work of our neighbours over-sea,
but had latterly died out altogether. To make
himself a master of this art, he set up a loom
in his bedroom at Hammersmith, and there
worked a panel with his own hands. The
difference between Morris's work and the

MOST COSTLY KIND OF TAPESTRY

made elsewhere is not, I believe, so much
technical as æsthetical. The art has unfortu-
nately been diverted from its true decorative
character to the copying of pictures which do
not properly lend themselves to such repro-
duction, and were never intended for it.
Morris worked from designs made specially for
the purpose for the most part. Those who
have had the good fortune to see the magnifi-
cent hangings in the dining-hall of Mr. Darcy's
house at Stanmore, representing the "Quest
of the Holy Grail," will understand how great
a triumph has been achieved, where the
designs of Sir E. Burne-Jones are worthily
worked out under the great craftsman's
personal superintendence. The piece of the
"Four Seasons," which was exhibited in 1896
at the Arts and Crafts, was designed by
Morris himself, and I think will be allowed to
be no mean witness to

HIS POWER OF DRAWING THE HUMAN FIGURE

when he was put to it by necessity, as happened
on this occasion. Among the many arts to
which he applied himself with notable success
I must not omit the mention of one which has
scarcely been heard of beyond the immediate
circle of his private friends, though he bestowed
much time and attention upon it, and attained
to great skill in its practice. I allude to the
truly mediæval art of calligraphy. This, like
many other of his labours, would have been
with an ordinary man an exclusive and absorb-
ing life-study, not so with Morris, he studied
it at odd moments, and pursued it as a pastime,
to fill up a few odd hours as it were. Numerous
volumes are in existence to bear witness to the
mastery he attained in this beautiful art,
many of them being

ENRICHED WITH ORIGINAL DECORATIVE DESIGNS.

Among the specimens of his calligraphic skill
are several translations of the Icelandic Sagas,
but his masterpieces were Fitzgerald's transla-
tion of the "Quatrains of Omar Khayyam,"
and the works of Horace and Virgil, the latter,
unfortunately never completed. I should do
Morris's memory a great wrong if I were to
omit all mention of the noble stand he made
against the destruction of ancient works of
art at the hands of the ruthless restorer and

the commercial wrecker. As a foremost founder
of the Society for the Protection of Ancient
Buildings, in company with Mr. Thackeray
Turner and others, he did work that entitles
him to the gratitude of every man and woman
who has any true love for the glory of our
ancestors. Nothing but absence from London
ever kept him from the weekly Thursday
evening meeting of the Society, and often
would he return to town from a great distance,
at extreme inconvenience to himself, that he
might attend to what he looked upon as

ONE OF HIS MOST IMPORTANT OBJECTS

in life. Innumerable were the letters he wrote
on the subject, and great was his grief when,
as but too often happens, the destroyers were
deaf to all appeals. Nevertheless, the good
work done by this modest but energetic
Society can hardly be overrated, and I would
earnestly urge on everyone in this assembly,
who has any love for ancient Architecture, and
any real reverence for the memory of William
Morris, that there can be no better way of
showing it than by becoming a member of the
Society for the Protection of Ancient Buildings
at the trifling subscription of 10s. 6d. per
annum. While considering Morris's life-work,
it is impossible to pass over one subject which
for about fifteen years absorbed a vast deal of
his time and attention. Though it may
appear on the surface to have no direct rela-
tion to the study, practice, and teaching of
art, he firmly believed that it went to the root
of the whole matter, inasmuch as he held that
there could be no good craftsmanship while
the craftsman was

IN A STATE OF DEGRADATION.

I refer, of course, to the Socialist movement,
into which from about 1881 he threw himself
heart and soul. When once he became con-
vinced of the justice of the cause, he cast
aside all considerations of personal taste, ease,
and comfort, doing violence, as I well know,
to his own feelings and predilections, and forcing
himself to personal work and labour that was
absolutely distasteful to him. I must confess
that it amazed me to see how earnest he was
in his belief that some great change in the
constitution of society could be wrought
suddenly, and by direct means. Never did
any man give himself to a cause with purer
unselfishness and more hearty devotion. Per-
sonally, he had everything to lose (as the
world counts such matters), and nothing to
gain. Fame he had already possessed, and

NOTORIETY HE GENUINELY AND UTTERLY SCORNEO.

For some years he bore the whole cost of
printing a weekly paper, which never ap-
proached within a long distance of paying its
expenses. He was not overburdened with
ready-money at the time, and even sold his
cherished books to provide funds. But he
spent not only money, but a large share of his
time in writing about current politics, which
were altogether hateful to him. But, unlike
those men who quarrel with all who do not
share their own enthusiasms, I never knew
him to attempt to thrust his opinions on those
who differed from him, and I greatly doubt if
he lost a single one of his old friends through
his generous espousal of an unpopular cause.
In his later years, though he did not alter his
opinions, it appeared to me that he was satis-
fied that any chance of forcing on a sudden
change was altogether hopeless. Who is there
but must admire

THE ARDOUR WITH WHICH HE WORKED,

not merely by giving moral and pecuniary
support to the cause he had adopted, but in
leaving his comfortable home and pleasant
literary and artistic occupation to go forth
early in the morning to speak at the dock
gates and street corners, attending innum-
erable evening meetings in localities that were
anything but grateful to his æsthetic tastes,
and travelling thousands of miles to the Mid-
lands, the North of England, and Scotland, to
speak at public assemblies, and all with no
hope of other reward than that which arose
from the consciousness of doing work which
he firmly believed to be for the benefit of those
who most needed his help. But the neglect

of his business, which this disinterested political activity made inevitable, had a far different result than what might have been expected. Being left to the able management of the two gentlemen whom he latterly took into partnership, the business flourished far more than it is likely it would have done otherwise, and so led to the great undertaking which, in my eyes at least, was the crowning work of his life, namely, the establishment of the

NOW FAMOUS KELMSCOTT PRESS,

and, moreover, afforded him the means of collecting the magnificent library of illuminated manuscripts and early printed books which was the delight and solace of his last years. The ordinary nineteenth century printing and book illustration had long been a thorn in his side. I well remember how, some twenty-five years ago, he took up a volume printed by Aldus about 1490, in his earliest and best manner, and exclaimed as he turned over the pages: "Ah, I wish I could get my books printed like that!" But to hope for the fulfilment of his ideal of typography by applying to any of the ordinary commercial printing offices would have been as futile as to attempt to get wallpapers to his taste from the ordinary decorator: there was but one way—to do the thing himself. But the starting of a press and the casting of founts of type are no slight matters, and had not money been coming in pretty freely from the business, under his partners' able management, I do not suppose that "The Golden Legend," the "Chaucer," or other noble

MONUMENTS OF ARTISTIC TYPOGRAPHY,

would ever have seen the light. As it had been with his previous undertakings, so it was with this. The whole scheme bristled with difficulties and hindrances at the outset, which would have deterred a man of less resource and determination from going on with it. But his knowledge of caligraphy and early typography, coupled with the able assistance of Mr. Emery Walker, rendered him independent of the ordinary means of starting a press, and for the first time since printing has been practised in England, type were designed and cast which are at once useful and artistic. Morris has not unfrequently been complimented, by writers who knew no better, on being the best English printer since Caxton; the fact being that, although we honour Caxton's name as the introducer of typography into England, and as a writer of sterling English, it may safely be said of him that he was the worst printer of the fifteenth century. His types were rude,

HIS WOOD-CUTS BENEATH CONTEMPT,

and his presses of the weakest, while his texts were faulty beyond measure. The founder of the Kelmescott Press happily lived to see the completion of the book upon which, of all others, he had set his heart, viz., the monumental edition of the works of his master, Geoffrey Chaucer. By a happy conjunction of circumstances, two editions of the great poet have been given to the world in forestalment of the five hundredth anniversary of his death, now closely upon us; Professor Skeat's Clarendon Press edition being a monument of textual labour and scholarship, and the Kelmescott Press edition being, I do not hesitate to say, for typography, ornament and illustrations combined, the grandest book that has issued from the press since the invention of typography. It was but three short months before the end came that Mr. Douglas Cockerell arrived at Folkestone,

WHERE THE DYING POET WAS STAYING,

with the first completed copy of the Chaucer bound from his own design. The title page had been his last great work, and he turned over the pages with evident gratification, weak and feeble as he then was. How many grand books might have issued from the Kelmescott Press had the master's life been prolonged it is impossible to say, but three books he had specially in his mind, to wit, Shakespeare, the English Bible, and Froissart's "Chronicles;" for the last-mentioned he had already designed some borders. Alas! these three glories of the English language are, in

all likelihood, destined to wait long ere they appear in such guise as Morris desired to bestow upon them. To sum up, then, for forty long years were the teeming brain and the deft hands of this indefatigable worker busy for the benefit of his fellow men; from the day, we may say, when he projected the Oxford and Cambridge Magazine in 1856—when the world seems to have been almost young as we look back upon it—till within a few days of his death in 1896. And how truly marvellous had been that work, how many homes have been made more cheerful and happier by the

BRIGHTNESS AND BEAUTY HIS GENIUS HAS BESTOWED

upon them; what love of antiquity has his teaching awakened and kept alive; how many ancient monuments have been saved from destruction by his efforts; what new life has he given to the art of design, if men will but have the wit to learn the lessons he has afforded them; what a storehouse of delight and pleasure has he laid open to us in his immortal verse and those magnificent prose poems—his romances—and what a glorious halo has he shed round him by the nobility of his character. In all the intimate relationship of business and private friendship that I had with this great man, extending over a period of more than thirty years, I never knew him to give countenance to an action of which any man might be ashamed, and a falsehood was as foreign to his lips as snow in midsummer: to attempt to get the advantage over his fellow man was a thing that never for one moment entered his mind. He has in truth left us by his life-work a glorious heritage which all men enjoy, and truly may it be said of him, that "He being dead yet speaketh."

TINTERN ABBEY ON SALE.

RARELY, indeed, have such attractive, extensive, and interesting properties been in the market as the estates in Monmouth and Gloucestershire, which the Marquis of Worcester has decided to sell. Moreover, it may be remarked that Messrs. Driver and Co., who have the estates in hand, have reversed the usual order of things, and, instead of offering the properties first of all by auction, they begin by submitting the properties for sale by private treaty. It will be curious to see the results. In the meantime, the disposal of such estates will be a large event in the property market. Let us just look what they include. There is that glorious ruin, Tintern Abbey, Raglan Castle, Monmouth Castle, Chepstow Castle, Usk Castle, and other feudal ruins, twenty manors, eighty farms, comprising 13,000 acres, which will be sold singly or in blocks, valuable fisheries, sporting rights, small holdings, accommodation lands in the town of Monmouth, Chepstow, and Usk, twenty-eight hotels, public-houses and beer shops, and ground-rents, the whole estate producing a rent roll of £30,410. It is understood that if the properties do not sell by private treaty they will be offered by auction, the first sale being held in October. In reference to this great sale, considerable curiosity has been aroused as to the fate of Tintern Abbey. This Abbey, which dates from the twelfth century, is regarded as one of the finest historic ruins in the country, its picturesque and romantic beauty when seen by moonlight giving it a prominent place among the recognised sights of Great Britain. In many circles the feeling is entertained that the future ownership of such a splendid relic of the past is a matter of concern to the general public, and that some means should be taken to preserve it intact for the nation. The approaching sale would therefore seem to afford an excellent opportunity to the National Trust for places of historic interest or national beauty, and the matter has already been brought under the notice of the Trust. Any action, however, on the part of that body would necessarily have to be liberally supported by the public, as the revenue now derived in the shape of admission fees from the numerous visitors invests the Abbey with a definite commercial value.

A LONDON STREET SCHEME.

FROM HOLBORN TO THE STRAND.

THE Improvements Committee of the London County Council has submitted to the Council a scheme, which appears to be both bold and well conceived, for a new street from Holborn to the Strand. Every one familiar with Central London knows that the great defect in the means of communication is the absence of good thoroughfares from north to south. London, of course, owes its existence to the Thames; for centuries it clung to the river bank; and its origin is still written in its main streets. Regent Street, a comparatively recent creation, is the only main avenue from north to south which can compare with

THE GREAT TRUNK LINES ALONG THE STRAND

and Fleet Street, Oxford Street and Holborn, and the Marylebone and City Roads. Between Regent Street and the City there is not a single line of communication from north to south of any importance; there is scarcely a reasonably direct thoroughfare. It is not surprising, then, says the Times, that ever since the County Council has been in existence its attention should have been turned to the formation of a new street from Holborn to the Strand. Various schemes have been suggested; one was, in 1892, even presented to Parliament, but difficulties of divers kinds arose, and none has yet been seriously pressed upon the Legislature. Several considerations, however, point to the present as a favourable time for realising such a project, and

THE PLAN PROPOSED

by the Improvements Committee has many exceptional features to recommend it. The present scheme is to carry a new road, 100ft. wide, from a point in Holborn immediately opposite Southampton Row directly towards the Strand. The new street would absorb Little Queen Street, and, not touching, but running to the west of, Lincoln's Inn Fields, would cross the lines of Great Queen Street, Sardinia Street, Vere Street, and Stanhope Street. The approach to the Strand would take the form of a crescent, one horn of which would strike that thoroughfare at the corner of Wellington Street, thus giving direct access to Waterloo Bridge, while the eastern horn would enter opposite the Church of St. Clement Danes, and in the immediate neighbourhood of the Law Courts. In forming the road, it is proposed to

ACQUIRE THE WHOLE OF THE BUILDINGS

between the Strand and the new crescent, Wych Street being thus wholly, and Drury Lane partially, abolished. The area thus cleared would form one of the most valuable sites in London, and buildings of importance and architectural value would naturally be placed upon it. Holywell Street, and the blocks of houses between it and the Strand, would, it is unnecessary to say, disappear. The two churches of St. Mary and St. Clement Danes, on the other hand, would be untouched; and the Strand would be widened on the north of St. Mary's so as to place that striking building in a proper setting. The Law Courts would gain in dignity from the new approach and would group into the architectural features. We have said that the present is an appropriate time for carrying out such a scheme. Several improvements necessarily connected with such a street have already been authorised. The demolition of Holywell Street was sanctioned by Parliament last year. The widening of Southampton Row to 60ft. is in progress, arrangements for that purpose having been made with the Duke of Bedford by voluntary agreement; and the insanitary areas between Clare Market and Drury Lane are to be cleared and rebuilt under the authority of the Home Office and Parliament. Not only do these improvements facilitate the formation of the proposed street, but they furnish reasons against delay. The removal of the buildings between Holywell Street and the Strand will greatly raise the value of the houses now standing on the north side of the former street, and, if these are at any time to be in turn taken for

such a thoroughfare as that suggested, it is foolish to wait till their value is enhanced. The whole improvement should be carried out at the same time. Again, the insanitary areas, when cleared, will obviously be dealt with in one way if the neighbourhood remains as it is, and in quite a different way if

ONE OF THE GREAT STREETS OF LONDON runs through their midst. Hence, if the street is to be formed at all, the necessary Parliamentary power should be obtained without delay. Mr. Shaw Lefevre's estimate—Mr. Lefevre is chairman of the Improvement Committee—of the cost of the new street is surprisingly low. This arises from the fact that the property to be taken is mostly of a very poor character, while from its central position a great new street will supply sites of very great value. Poor as they are, the buildings taken (with the trade compensation incident to such a taking) are valued at no less than £1,442,500. But the selling value of the ground rents which will be created on the frontage lands is put at no less than £1,088,300, leaving a net cost of £354,200 only. To this is to be added £120,000 for the actual making of the street, with the accompanying subway and sewers, and £150,000 for the expense of rehousing persons of the labouring class displaced. The total cost thus reaches £624,200, which represents about 3-16ths of a penny in the pound on the county rates for the first year after the commencement of the improvement. Against this is to be set such receipts as the Council may obtain from a betterment rate of the character authorised by Parliament in the case of the Tower Bridge approach. The expenditure will be a mere bagatelle for a thoroughfare which will enormously facilitate traffic in the heart of London, and will give air and space and dignity to a part of the capital which is at present a mere network of obscure streets.

THE Bishop of London recently opened a new hall and clergy house in connection with St. Silas's Church, Penton Street, Clerkenwell.

JEDBURGH Police Commissioners have resolved to proceed with the erection of a new bridge across the Jed, connecting Bongate with Bridge Street. The existing bridge has been closed for some years against traction engine traffic. The estimated cost of the new bridge is £1800.

THE Bishop of Birmingham performed the opening ceremony of some new Roman Catholic schools, Willenhall, a few days ago. The schools, which will accommodate 350 children, will take the place of the old schools in Hall Street. The architect is the Rev. Canon Scoles (Yeovil), and the builder is Mr. Thomas Tildesley (Willenhall).

ACCINGTON CHURCH, Liverpool, which was erected more than fifty years ago, has undergone extensive alterations. Oak benches have taken the place of the old pews; the electric light has been fitted up throughout the edifice, and the interior has been thoroughly renovated. In addition to this two fine memorial stained windows have been placed in the building.

MR. R. K. CAUSTON, M.P., has opened the new Christ Church Public Library, in Blackfriars Road. The building consists of a large well-lighted general reading-room, a smaller ladies' reading room, and a lending library department. The cost of the new scheme, including the purchase of the freehold and the metamorphosis of two old dwelling houses forming the basis of the new building, amounts to £4500.

THE proposal to run an electric tramway from Kew to Hampton Court, through Richmond and Petersham, is meeting with vigorous opposition from many of the inhabitants in the neighbourhood, who are full of needless alarms. The scheme, which is being promoted by the London Tramways Company, will, it is maintained, entirely destroy the rural charm and picturesque character of both Richmond Hill and the unique village of Petersham, which, mentioned in the Doomsday Book under the name of Patricesham, is, like Richmond itself, fraught with classical reminiscences and interesting historical associations.

Professional Items.

ABERDEEN.—A meeting of the Torry Church Extension scheme, Aberdeen, was recently held. Instructions were given to the architect to prepare and issue the necessary schedules in order that contracts may be accepted without delay. It is expected that building operations will be commenced a month hence. The proposed new church, when completed, will contain 818 sittings, and will cost £3100, exclusive of the cost of building the boundary walls, laying out of the ground, architect's fees, etc. The part of it to be built at present will contain 550 sittings.

BRADFORD.—A new church and presbytery have recently been erected in Denaby Main, Bradford. The church contains nave and south aisle, with apsidal sanctuary in continuation of nave, and lady chapel at end of aisle, with confessional in close proximity, the choir gallery and organ chamber being at the west end. The altar, pulpit, sanctuary, balustrade, font, holy water stoups, and piscina are beautifully worked in Ancaster stone. The roof is open timbered. The whole of the buildings are erected in local stone. The work has been carried out by the following contractors, viz.:—Mr. F. Robinson, Thornton, excavator's, mason's, and bricklayer's; Messrs. Broadhead and Pickering, Bradford, carpenter's and joiner's; Mr. H. Lindley, Leeds, plumber's, glazier's, and heating; Mr. A. Taylor, Ecclehill, plasterer's and concreter's; Messrs. Y. and A. Thornton, Ecclehill, slater's; Mr. H. Walton, Frizinghall, painter's; Mr. S. Charnock, Manningham, sculptor's; Messrs. A. Seward and Co., Lancaster, stained glass; Mr. J. W. Swift, Bradford, tiling; Messrs. Nightingale and Co., Grimsby, wood block flooring; Mr. R. Burran, Bradford, electric fittings; Messrs. R. Farr and Son, Doncaster, mantelpieces and ranges; and Messrs. Thomason and Co., Birmingham, gasfittings. The architects were Messrs. Empsall and Clarkson, of Bradford.

BIRMINGHAM.—We give a description on another page of the new hotel which has been put up on the site of the famous old Hen and Chickens in New Street. The site was not large in area, but by going down 30ft. below the street for the sub-basement the utmost use was made of the available ground. The building cost about £14,000, and is of nine floors. The steel frame method of construction has been employed, and the floors are of expanded metal, with Mount Sorrel granite and Portland cement. The whole of the column in the basement is of Ross of Mull granite, and the walls are decorated with enamelled tiles, and the reception rooms of hotel with Japanese paper and Lincrusta Walton. The tiling throughout is by Messrs. Maw and Co. The staircases are of patent Victoria Stone, and the handrails of copper by Messrs. Thomas Brawn and Co., who also put in the wrought-iron work of the lift casing and the stairway sides. This work is exceptionally effective and pleasing. The sanitary fittings are by Messrs. Adams, and as perfect as it is possible for them to be made. A complete system of electricity for the lift, and for lighting also, is by Messrs. Anderson and Gooldeen. Other firms and companies represented are the following:—Casements, Henry Hope; laundry machinery, Messrs. Tullis, of Kilbowie; radiators, James Keith; furnishing, A. R. Dean; calorifiers, J. J. Royle; electric fittings, Martineau and Smith; ventilating fans, Pickup and Co., Bury.

BLITH.—A commencement will shortly be made at Blith with the erection of a new Theatre for the Blith Theatre Company. The site of the building is in Trotter Street, Waterloo. The old building—once the Zion, or Octagonal Chapel—is to be utilized as a concert hall. Simultaneously operations will be commenced in connection with the proposed new theatre in Union Street, plans for which have also been approved.

CRIEFF.—The Crieff School Board has resolved to erect a large addition to the west wing of the Commissioner Street Public School. The addition consists of new classrooms, offices, cloak-rooms, &c. It is anticipated that the addition will cost about £1200. The architect is Mr. Ewan, Glasgow.

DUNDEE.—The extensive additions which it is proposed to make to King's Cross Fever Hospital, Dundee, consist in the addition of three pavilions, each containing twenty-two beds, a discharge block to each of the existing and proposed pavilions, the completion of the administrative block, and other minor buildings. It is also recommended that all the wooden structures forming the old Hospital should be demolished. The estimated cost of the extensions is £16,000.

GLASGOW.—Hitherto the plans in connection with the reconstruction operations of the Glasgow Improvement Trust have been prepared by the permanent staff of the Corporation. Increase of work, however, has made the continuance of that arrangement impossible, and the Committee now propose to invite outside architects to submit plans and estimates. This course, which has been adopted meantime by way of experiment, will be taken for the first time in connection with the King Street area. The buildings to be erected will consist of shops and business premises on the ground floor, and dwelling-houses, principally of two rooms, on the other three stories. Premiums will be awarded for the best plans, and the successful competitor will have the supervision of the work on the usual commission.

KELVEDON, ESSEX.—A number of semi-detached cottages are about to be commenced for the labourers on Messrs. Moss and Son's seed farms in the districts near Kelvedon, and an attempt is being made to solve the problem of comfortably housing the working classes in rural districts on strictly economical lines, whilst helping to supply the long felt and increasing need for such dwellings in nearly all agricultural districts. Owing to the high price of bricks and the distance of brick yards, the materials to be used are concrete, timber, and plaster. Those to be commenced at once will have concrete foundations and party walls, chimney breasts, &c., all other walls of timber framing. The outside, up to first floor line, will be covered with rustic joint-tongued weather boarding, finished with a plain moulded string, and over this buff shingle, rough cast. The roofs will be covered with patent red "self-lock roof tiles." The accommodation provided is as follows: Ground floor, small entrance lobby and staircase, well-lighted sitting room 11ft. by 11ft. 3in., with oriel window; living room or kitchen 12ft. by 11ft. 3in., fitted with cottage range and small dresser; connected by a small covered way is a washhouse, with copper and sink, earth closets, pantries (with outside windows), and coal stores are also provided. On the first floor three bedrooms are arranged, 11ft. by 11ft. 3in., 11ft. 3in. by 9ft., and 8ft. by 6ft. respectively, all entered from a small landing. The internal woodwork will be covered with fireproof stains in various tints. The outside weather boarding, also cills, sleepers, and all timbers liable to rot, will receive two coats of rotproof staining solution. Each cottage has a quarter of an acre of land, and water supply from wells sunk on the sites. The builder of the first three pairs is Mr. W. W. Rust, of Witham; and the architect is Mr. George E. Clare, 66, Duke Street, Chelmsford.

LIVERPOOL.—The foundation stone of "Bevington House," a model lodging-house for men, was laid a day or two ago. The building has been designed by Messrs. C. O. Ellison and Son. The site comprises about 2200 square yards, and has frontages of about 45 yards to Bevington Bush, 30 yards to Nicholas Street, 35 yards to Aldersey Street, and 49 yards to Arden Street. Only a portion of this area is actually being built upon, the remainder being reserved for extensions; but the present building will accommodate 450 lodgers, whilst the scheme,

when fully carried out, will provide 650 beds. The building will be six stories high (one less than the Rowton Houses, London), with the main entrance from Bevington Bush. All floors and staircases will be fireproof; there will be a large open courtyard containing the w.c.'s, etc., and throughout the buildings warmth, comfort, and sanitation will be most carefully studied.

MIDDLESBROUGH.—The Cleveland Asylum at Grove Hill, Middlesbrough, has just been opened. The institution, which has cost £100,000, will accommodate 250 patients, but provision is made for future extension so as to accommodate 150 more patients. The asylum occupies a site of 98½ acres. The arrangements of the main buildings on both the male and female sides are excellent, the various rooms and offices for different purposes being placed in most convenient positions. The superintendent's house is practically a detached building, being only connected to the main building by a narrow corridor. There is also a detached hospital for the treatment of infectious cases. This provides accommodation for ten patients, with the necessary rooms for the nurses and caretaker. The chapel is detached, and consists of a nave, chancel, organ chamber, and vestry. It affords sitting accommodation for 204 persons. The whole of the wards and other portions of the buildings occupied or used by the patients and staff are, in addition to open fireplaces, heated by hot water on the low pressure principle.

NORWICH.—The Mayoress of Norwich has laid the foundation stone of the new Congregational Church at Topcroft. The building consists of church, porch, and vestry, erected in red brick, with Cossey moulded windows and dressings, the prevailing style being late Gothic. The size of the church is 38ft. by 23ft. 6in. It is lighted by a large mullioned window at the end, with four windows on the south side, and two on the north, glazed with lead quarry glazing and cathedral glass. There are hopper ventilators, and an exhaust ventilator in the roof. The floor is of yellow deal. The roof, covered with green slate, is wagon-headed, and supported by three framed principals, plastered between. The benches are arranged for 150. The rostrum is at the east end, and behind it is the door of the vestry. The lowest estimate, £545, was that of Messrs. S. Y. Brock and Sons, of Alburgh, to whom the work was entrusted.

SEACOMBE.—The erection of the new public elementary schools for the Poulton-cum-Seacombe School Board has been commenced by the contractor, Mr. E. Gabbutt, of Oakes Street, Liverpool. The disposition of the buildings has been arranged to provide sheltered playgrounds, for boys, girls, and infants, on what would otherwise be a very exposed site. The schoolrooms and classrooms are designed to be lighted in accordance with the most modern ideas, and are arranged in relation to one another, so that, although the rooms in each department all adjoin for convenience of supervision, any one room can be emptied of children without disturbing any other. In addition there are provided a cookery and laundry centre, also, in separate blocks, a carpenter's shop, with spacious gymnasium above, and caretaker's house. The erection is being proceeded with under the personal supervision of the architects, Messrs. T. Mellard Reade and Son, of 2, South John Street, Liverpool.

WEST BROMWICH.—The foundation-stone of a new church in Beeches Road, West Bromwich, to be known as St. Philip's, has been laid. When completed the church will accommodate 750, and will consist of nave, north and south aisles, morning chapel, chancel, organ chamber, clergy and choir vestries, with four porches. The building is to be carried out in red bricks, with buff terra-cotta dressings. The contract has been let to Mr. John Dallow, of Black Heath, and the architects are Messrs. Wood and Kendrick.

Views and Reviews.

LINCOLN CATHEDRAL.

Canon Venables has written a pleasant and interesting little account of Lincoln Cathedral. It is not exactly a handbook, it has no statistics, or lists of Deans or other dignitaries. The author meets you at the station, strolls with you through the town—pointing out everything of interest as you pass—and then takes you up "The Steep" to the Cathedral precincts, where he gives you a short account of the foundation of the original building. As you pass round, he explains the sequence of the different parts of the structure, calls your attention to anything of exceptional curiosity or beauty, and beguiles you with old world tales of bishop or saint. If occasionally a moral reflection creeps in, well—it is only occasionally. Mr. Railton contributes some pen-and-ink sketches, which, like all his drawings, have a distinct charm, but they seem rather to lack in breadth and sincerity. The book is nicely bound and printed, and it is just the size and shape for the pocket.

"Lincoln Cathedral," by the Rev. Edmund Venables, M.A., late Canon of Lincoln. Illustrated by Herbert Railton. London: Isbister and Co. Limited, 1898.

THE RENAISSANCE IN ITALIAN ART.

The time of the Renaissance in Italy is, perhaps, from one point of view, the most fascinating period in the history of humanity. Man, who for centuries had been living in the twilight like the cavedwellers of Plato, now ventured again to turn his face to the light, and fix his blinking and unaccustomed eyes on the beauty and mystery of Nature. After long years of repression, he dared again to live, to think his own thoughts, to be himself. His passionate affirmation of the grandeur and the beauty of life, and of his own right to live that life to the fullest and the uttermost, has nowhere had more striking and interesting results than in its influence on Italian Art. The glamour of this fascinating period has been felt by all men of education, whether artists, critics and scholars, to whom it has been the study of a lifetime, or cultured men of affairs who have found in it at once a relaxation, and a refining and humanising influence. To the latter class belongs the author of this handbook, who, while disclaiming any special knowledge or authority, has yet felt that there was good work to be done in classifying and placing in a readable and popular form the knowledge which already exists. A handbook for students and travellers, it is the first part of a series of three, which will deal with the schools of Florence, Venice, and Rome. This first part is devoted principally to Florence, and the minor schools of Pisa and Siena. Beginning with Cimabue, Giotto, and Niccolò Pisano, it ends with Bollicelli, and Ghirlandajo. To keep the book more readable, matters of technical criticism and processes of work have been relegated to appendices. While recognising its value to serious students, to whom it may be recommended, one yet feels that for the traveller and amateur the style is hardly as clear and easy as it might be. For instance, when several painters are referred to together, or the account of one runs into that of another, it is not always easy to tell which name the next personal pronoun refers to. One has constantly to hark back, in order to make sure. Such defects in style tend to confusion, and to diminish the attraction of a book to those who do not read with very serious intentions.

"The Renaissance in Italian Art (Sculpture and Painting)": Part I. By Selwyn Brinton, B.A. (Barrister-at-law.) London: Simpkin, Marshall, Hamilton, Kent, and Co. Limited, 1898.

At a meeting of the Paddington Vestry a letter was read from the solicitor to the vestry to the effect that a faculty had been obtained and the plans approved for the erection of a new town hall. The new hall will be built on the ground covered by and at the rear of the present vestry hall in Harrow Road, the accommodation in which is found to be quite inadequate to present requirements.

Under Discussion.

PROPOSED BUILDING EXCHANGE AT HUDDERSFIELD.

A meeting of master builders and others of Huddersfield has been held, to consider a proposition that an Exchange be established for the use of members of the building and allied trades, and members and dealers in building materials. The Mayor wrote that he felt it was not right that the young men who were being educated with the object of entering into the businesses established by their fathers should be asked to meet in public-houses to transact business, as was done fifty years ago.—The Chairman (Mr. Lewis Ratcliffe) said that associations similar to the one they desired to found were in existence in Bradford, Halifax, and Leeds, each with a large membership, and working successfully. He moved: "That it is desirable to form an exchange for the building and allied trades in Huddersfield and district, for the purpose of offering additional facilities to the members of the trades for the transaction of business between themselves, and for social purposes."—Mr. John Pyrah seconded the motion, which was adopted.—The Mayor was elected president, Messrs. Wilmshurst and Stones hon. secretaries, and Mr. T. B. Tunnicliffe hon. treasurer. A large committee were also appointed.

AN EXCURSION IN NORFOLK.

A number of members of the Architectural and Archaeological Society of the Counties of Lincoln and Nottingham, who are holding their annual excursion at King's Lynn, have visited Old Hunstanton Church and Hall, subsequently proceeding to Heacham, Snettisham, Dersingham, Wolferton, Castle Rising, and South Wootton. At a conversazione, held by the invitation of the Mayor, Mr. E. M. Beloe read an interesting paper on "Eugene Aram." Other papers were also read.

THE DUNDEE INSTITUTE.

A large number of the members of the Dundee Institute of Architecture, Science, and Art had a day in Strathearn recently. Innerpeffray Library and Castle were first inspected. The adjoining chapel and graveyard were also examined. Considerable interest was taken in the chapel, which is divided into three parts, the eastern division belonging to the Drummonds of Drummond Castle, the central to the Drummonds of Strathallan, and the western to Captain Drummond of Cromlix. In the eastern part the grave of the Chief of Clanranald, who was killed at the battle of Sheriffmuir, was seen. A feature of special interest was the consecration marks on the walls. The building has several points of architectural interest, the stones over the main door being hewn after a very ancient design. The corners of the old graveyard are said to have been at one time surmounted by towers. The ruins of the castle were also visited by the party, who thereafter drove to Abercainry House and grounds, and here the striking beauties of the locality were the subject of general comment. Proceeding through the estate of Cultoquhey, on which is one of the old Caledonian camps, the company were driven to Crieff, and then to the world-famed Drummond Castle and gardens and to the old Church of Muthill. It was at Drummond Castle that the Duke of Perth of 1745 celebrity resided, and the castle has been frequently visited by royalty. Queen Mary frequently visited the castle, and in the autumn of 1842 Queen Victoria and Prince Albert resided there. Thereafter the party were driven on to Muthill, where the Rev. Dr. Rankin conducted them through the old graveyard, giving many particulars regarding the history of the place. The ruins of the old church and the tower met with considerable attention.

The Princess of Wales will accompany the Prince of Wales on the occasion of laying the foundation-stone of the Deptford Fund Buildings, at Creek Road, Deptford, on Saturday morning, 2nd July.

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Building Stones and Quarries of Northumberland and Durham.*

BY GEORGE T. BROWN.

THE subject of these notes refers more specially to the building quarries and stones of the counties of Northumberland and Durham, which counties are principally notable—in the building stone line—for the production of sandstone.

I have included, in a tabulated statement I have prepared, a column indicating the geological formations from which the various local sandstones are got. Now, to understand the nature and proper use of building stone, it is necessary to know something of physical geology, which deals with the origin, mode of formation, composition and disposition of rocks, and with the various changes through which they have passed, whether physical or chemical.

In geology the word "rock" denotes all the strata, whether soft or hard, which go to make up the earth's solid crust; the softest clays and loosest sands, as well as the hardest granites, are therefore included. The architect, however, is only interested where quarries are concerned with the harder rocks, which must allow of their being sawn, and worked with chisel and tools, before being put into any building.

I have on this map indicated as nearly as I can the positions of the various quarries in the two counties, by means of the black dots. Beginning at the S.E., and travelling towards the N.W., one would pass over the newer beds and reach the older beginning with the Triassic and crossing Permian (including the magnesian limestone) on to the carboniferous (containing the coal measures and millstone grit, from the former of which most of the sandstones are procured) thence on to the

* A paper read before the Northern Architectural Association.

carboniferous limestone, which is generally known in the neighbourhood as the Bernician and often called the Youdale Beds, on to the Igneous rocks of the Cheviots.

FORMATION OF SANDSTONES.—Leaving the various formations and confining ourselves to the products of the quarries, it is evident that to understand their structure it is advisable to know something of their origin.

Sandstones are composed of quartz grains which were originally laid down as sediment in the sea, not far from land, for the quartz grains of which they are composed were derived from the denudation of the land. In the first instance, the grains were no doubt obtained from the wearing away of crystalline rocks containing quartz, but the majority of the sandstones formed at later periods were largely made from the destruction of pre-existing rocks. Many sandy deposits now in process of formation, for instance, have obtained the materials of which they are made from the denudation of the sand-cliffs along our sea coasts.

Suppose we follow out the formation of a sandstone the quartz in which has been derived directly from a crystalline rock, such as granite. The felspar would decay and, being borne out to sea in the form of mud, would form clay. Part of the mica would also be removed, thus leaving the remainder of the mica and the quartz loose. These the sea would eventually seize hold of, the mica being carried away some distance from the beach at an early stage in the process, but the quartz crystals would be rolled to and fro on the beach, knocked together and broken, their rough jagged edges being worn off whilst being made into pebbles. The pieces resulting from this fracturing would be of various sizes, and the smaller pieces or grains of quartz, being small enough for the water to hold in suspension, would then be carried away from the shore. If we still follow these little grains up we shall find that as the velocity or drifting action of the water became insufficient to suspend them, they would fall to the bottom,

being quietly deposited there. It often happens that flakes of mica are deposited with the quartz, and are so arranged in thin layers that, when the sand becomes hard, it assumes a fissile character, which renders it capable of being split up into flagstones.

Little pebbles would be frequently deposited in the coarser sand. As molluscs and other organisms living in the sea died, their remains would be covered up by the deposit of sand, and unless subsequently removed, would be handed down to us as fossils. The accumulation of sand in time might become very great when the upper part of it, exerting considerable pressure on the lower, would cause it to become compact.

Although pressure alone is sufficient to make particles of sand cohere into a hard mass, yet by far the greater quantity of sandstone quarried for building purposes has a matrix or cementing material. This in most cases has been introduced into the stone after the sand has been laid down, for water, in percolating it, has left behind some of the chemicals which were held in solution, and these, forming round the grains of sand and filling up little spaces, made the mass hard—in other words, made the sand into a sandstone.

A microscopic examination of sandstone imparts a considerable amount of useful information. Then it is seen that a specimen which from outward appearance was not suspected to contain any grains but those of quartz, is made up also of minute particles and fragments of other minerals. Little opaque grains of some form of iron are frequently seen under the microscope. These are waiting to be attacked by the atmosphere, and by their decay cause unsightly ferruginous lines to run down the surface of the stone when built up. The microscope is also useful in pointing out the state of cohesion of the quartz grains, and to some extent the nature of the matrix. If, for instance, the grains are rather far apart, and the mineral calcite appears between them, the stone would not be very durable, but more so than when the carbonate of lime existed, as it very often does, in an earthy form. If, on the contrary, the small quartz grains are close together, and the little matrix at present looks firm, that is, does not present a decomposed, woolly appearance, the stone would be durable and easy to work. It would be still more durable if little veins, presenting the granular structure peculiar to chalcedony, or secondary quartz, were seen running here and there between the grains of quartz, although the more siliceous the matrix is, the more difficult the stone becomes to work up.

We see then that sandstones consist generally of grains of quartz, i.e., sand, cemented together by silica, carbonate of lime, carbonate of magnesia, alumina, oxide of iron, or by mixtures of these substances. In addition to the quartz grains, there are often other substances, such as flakes of mica, fragments of limestone, argillaceous and carbonaceous matter, interspersed throughout the mass. As the grains of quartz are imperishable, the weathering qualities of the stone depend upon the nature of the cementing substance, and on its powers of resistance under the atmosphere to which it is exposed. Sometimes, however, the grains are of carbonate of lime, embedded in a siliceous cement; in this case the grains are the first to give way under the influence of the weather.

Sandstones are found in great variety of colour—white, yellow, grey, greenish-grey, light brown, brown, red, and blue. The colour is generally caused by the presence of iron, which in its various chemical forms produces different tints. The recent fracture of a good sandstone, when examined through a powerful glass, should be bright, clean, and sharp, the grains well cemented together, and tolerably uniform in size. A dull and earthy appearance is the sign of a stone likely to decay.

WEIGHT AND ABSORPTION.—Any substance weighing less than 130lb. per cubic foot, absorbing more than 5 per cent. of its weight of water in twenty-four hours, and effervescing anything but feebly with acid, is likely to be a second-class stone as regards durability where there is frost or much acid in the air; and it may also be said that a first-class sand-



stone should hardly do more than cloud the water with Mr. Smith's test. Smith's test: Damp chippings in one-third glass of water half hour, the water agitated and the result noted.

PRACTICAL WAY OF ASCERTAINING WEATHERING QUALITIES.—The durability of a stone to be obtained from an old-established quarry is best ascertained by examining buildings in the neighbourhood of the quarry in which the stone has been used. If the stone has good weathering qualities, the faces of the blocks, even in very old buildings, will exhibit no signs of decay; but, on the contrary, the marks of the tools with which they were worked should be distinctly visible. Exposed cliffs, or portions of old quarries, or detached stones from the quarry, which might be lying close at hand, should also be examined to see how the stone has weathered. In both cases care should be taken to ascertain from what stratum or bed in the quarry the stones have been obtained.

GRAIN.—It is generally considered that the coarse-grained sandstones, such as the mill-stone grits, are the strongest and most durable. This, however, seems doubtful; at any rate, some of the finer grained varieties are quite strong enough for any purpose, and seem to weather better than the others.

THICKNESS OF LAYERS.—In selecting sandstone for undercut work or for carving, care must be taken that the layers are thick; and it is, of course, important that stones should rest in most cases on their natural beds.

USES.—The hardest and best sandstones are used for important ashlar work; those of the finest and closest grain for carving; rougher qualities for rubble; the well-bedded varieties for flags. The following qualities are necessary to ensure a good material for building purposes:—

Durability, or the power of resisting atmospheric and other external influences, is the first essential in a stone for almost any purpose.

The durability of a stone will depend upon its chemical composition, its physical structure, and the position in which it is placed; and the same stone will greatly vary in its durability according to the nature and extent of the atmospheric influences to which it is subjected. Durability also depends, to a great extent, upon the relation between its chemical constituents and those of the atmosphere surrounding. A stone which will weather well in the pure air of the country may be rapidly destroyed in the smoke of a large town. The principal cause of this decay is the action of the acids, both hydrochloric and sulphuric, in the atmosphere, and also brought down in solutions by rain and even in small quantities. The physical structure of a stone is of the greatest importance, for upon it depends greatly its power of resisting the action of the atmosphere.

FACILITY FOR WORKING.—The readiness with which stone can be converted by the mason into the various shapes in which it is required for different kinds of work is of importance from an economical point of view. The characteristics of a stone in this respect will depend in some cases upon its hardness, but will also be influenced by the soundness of its texture, by its freedom from flaws, shakes, vents, &c., and also by its natural cleavage and other ties. A soft stone of even grain and without distinct beds would naturally be selected for carved work, while a hard stone in thin layers, easily separated, would be well adapted for building good and economical rubble masonry.

HARDNESS.—The hardness of stone is often of importance, especially if it is to be subjected to a considerable amount of wear and friction, as in pavements. It is, moreover, important when the stone is to be used for quoins, dressings, and other positions where it is required to preserve a sharp angle, or "arris." It does not follow because a stone is hard that it will weather well; many hard stones are more liable to atmospheric influence than those of a softer texture, whose chemical composition is of a more durable nature. Stone used for work exposed to the action of water should be hard.

(To be continued.)

Builders' Notes.

WE understand that the statements which have recently been published to the effect that the Metropolitan Railway Company has prepared plans with a view to erecting a new station between King's Cross and Farringdon Street have no foundation in fact. It is true that the directors have power to erect a station in the vicinity should they so desire, but up to the present the question is simply under consideration, and nothing definite has been settled. One difficulty in the way of a station at the particular spot which has been suggested, viz., where the Farringdon Road and Rosebery Avenue cross one another, seems to be the great depth of the tunnel at this junction, which would necessitate the erection of lifts for the convenience of passengers.

THE Improvements Committee of the London County Council have resolved to recommend the Council to include the following schemes of public improvement in the Improvements Bill to be introduced by the Council next Session:—High Street, Kensington, widening, estimated cost £81,000; Wandsworth Road, Lambeth, widening between Vauxhall Cross and Nine Elms Lane, £55,000; rebuilding of Cat-and-Mutton Bridge, Shoreditch, £68,500; rebuilding of the Old Gravel Lane Bridge, St. George's-in-the-East, £14,000. Towards the Kensington and Shoreditch improvements the local vestries have promised contributions. The total estimated cost of six contemplated improvements, without deducting contributions, is £1,004,700; after deducting contributions, but not betterment, £955,700; and the annual charge on the rates will amount to £42,477, equivalent to a rate of .277d. in the pound. The annual charge for interest will decrease each year by £445.

MR. LANE, Q.C., the magistrate at the West London Police Court, recently heard a summons against Mr. William Henry Gibbs, a builder, of West Kensington, for preparing to lay out a street at the Hamlet Gardens Estate, King Street, Hammersmith, without first obtaining the sanction of the London County Council. Flats of a residential nature were being erected on the estate, and for the defendant counsel argued that as the street, if it could so be called, was in the nature of a courtyard, and intended exclusively for the use of the tenants, it could not be considered a highway within the meaning of the Act.—Mr. Chivers, in support of the summons, maintained that whether the street be a private one or not the provisions of the Act nevertheless applied, and he quoted the decisions of learned judges in support of his contention.—Mr. Lane, Q.C., confessed that after reading the decisions they seemed to be at variance with one another. He found for the defendant, and in dismissing the summons with five guineas costs, granted a special case for the consideration of the superior Court, at the same time advising Mr. Chivers to ask the judges to accurately define the meaning of a street.

RECENTLY, at the London Surveyors' Institution, the Metropolitan Tribunal of Appeal, composed of Messrs. A. Cates (president), A. A. Hudson, and J. Penfold, had before them for consideration an important appeal case, in which the power of the London County Council under the Metropolitan Building Act of 1894 was sought to be defined. The parties were the Lion Brewery Company (appellants) and the London County Council (respondents).—Mr. A. F. Wootten appeared as counsel for the brewery company, and the Council was represented by Mr. T. Seager Berry.—According to Mr. Wootten's opening statement, it seemed that the dispute centred around a property known as 29, Foubert's Place, Regent Street. Early in the present year plans were submitted by the architect for the Company to the Council, approval being sought for deviations from old certified plans under Section 43 of the Building Act. After keeping the matter

in hand up to May 13, the Council refused to sanction the plans. It was provided in the Building Act that if any person should desire to deviate from the plans existing, it should be lawful for him to apply to the County Council, "who shall sanction such deviation on such terms as they shall think fit to impose." He held that no one could construe the word "shall" in an Act of Parliament to mean "may."—Mr. Hudson: But surely you don't mean to say that they are bound to sanction any plans of any kind or description?—Mr. Wootten: Oh, yes, within the meaning of the Act.—Mr. Hudson wanted to know what conditions would be imposed.—Mr. Wootten: I should say you must follow out all the conditions prescribed for the domestic buildings from the commencement of this Act.—Mr. Hudson suggested that there would be no object in the Act at all if that were so.—Mr. Seager Berry, on behalf of the Council, quoted a ruling by Lord Esher, in which it was shown that the word "shall" might not always be obligatory.—Eventually the tribunal allowed the appeal, subject to the imposition of certain conditions in the plans.

THE Lancashire and Cheshire Building Trades Employers' Federation, although only brought into existence a few months ago, is already fighting the men's trade unions in about twelve different towns in Lancashire, and there is every prospect of the struggle between capital and labour in the building trade being shortly considerably extended. The Federation was established to promote and further the interests of members, and, in particular, to protect and defend those interests against combinations of workmen seeking by strikes or other action to impose unduly restrictive conditions upon any branch of the trade. It will also deal with such questions as interference with foremen, unreasonable demands for wages, employment of apprentices, hours of labour, overtime, limitation of work, and the employment of men and boys on machines. By the rules members will be recouped under certain conditions for losses entailed by reason of strikes, and legal assistance will be given when deemed desirable. The Federation will promote the formation of conciliation boards or other provision for the equitable settlement of all differences between members and their workmen. It is further proposed that the executive shall watch all legislative measures which may affect, or tend to affect, the interests of the building trades.

THE Federation consists of a union of local associations connected with the building trade throughout Lancashire and Cheshire, and such individual members as may be elected at meetings of the Federation or by the Executive Board. The latter authority have power to expel any member who, in their opinion, is acting against the interests of the Federation. This Executive Board, which manages the business of the Federation, consists of a president, two vice-presidents, and six members from Manchester, a similar number from Liverpool, and twenty-four from the rest of the Lancashire towns federated. In the future, however, associations becoming members will have the privilege of electing one out of every fifty, or portion of fifty, of their respective members to act on the Executive Board. The voting power is as follows:—Members paying, on a three years' average, not over £1000 per annum in wages, one vote; £1000 to £2000, two votes; £2000 to £5000, four votes; £5000 to £10,000, six votes; and over £10,000, eight votes. The wages of office and management staffs have not to be included in this reckoning. The annual subscription from the local associations is at the rate of 3s. per member, and for individual members £1 1s., and the executive have power in the case of strikes to impose a levy not to exceed 1s. per cent. on the average annual wages paid in the past three years. Members of the Federation have in every case of dispute with the operatives to use inquiry forms, and are not allowed to employ anyone on strike or locked out from the workshop of a member during the continuance of such strike and lock-out.

PARIS ABATTOIRS.*

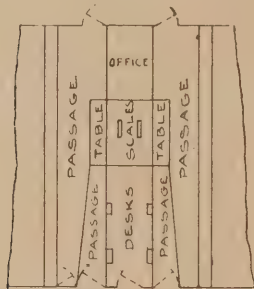
BY R. STEPHEN AYLING, A.R.I.B.A.

(Continued from page xlv.)

ON the southern side of the large central market, and parallel with it, is another market for the sale of sheep (O. Fig. 1), similar in size to that for pigs and calves. Six wide roads cross the market laterally, and it is divided into pens as shown on Fig. 9. These pens are again subdivided by a number of iron posts, 1ft. 10in. high and 2in. diameter, to which hurdles can be tied, thus accommodating either a large or small number of animals. The roads are formed in granite blocks, and the flooring of pens in cement.

These three markets are similar in elevation and section, differing only in size. At P. (Fig. 1) is a large open space arranged with pens for sheep, and at Q. (Fig. 1) a "Bouverie" (stable for beasts).

At the southern end of the market, O., is a long "Abrevoir," R. (Fig. 1), or drinking pond, through which the animals pass on their way to the markets in the morning. This is illustrated by plan and sections on Figs. 10, 11, and 12. It is bounded by walls 4ft. 9in. high, along which, on either side, are platforms 2ft. wide, with handrails for the drovers. The bottom of the pond slopes towards the centre, allowing, at the deepest part, about 3ft. of water when fully charged. Drinking troughs



WEIGHING APPARATUS
IN BLOCK OF PENS FOR PIGS
FIG. 8

are also fixed on the outside of the boundary walls.

At the end of the market for pigs and calves (L.), Figs. 13 and 14, is another drinking pond, S. (Fig. 1), octagonal in shape, and bounded by walls about 5ft. high. The ground slopes towards the central divisions, allowing at the deepest part about 3ft. of water.

The building T. (Fig. 1) is a handsome stone structure of two stories in height. The rooms are grouped round two internal courts, and are devoted to offices for the various departments.

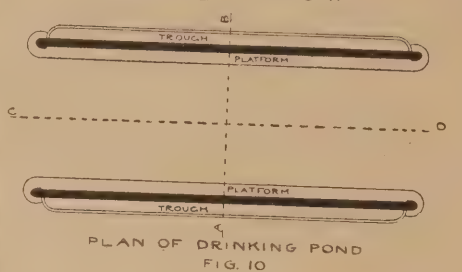
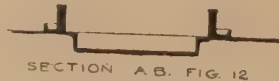
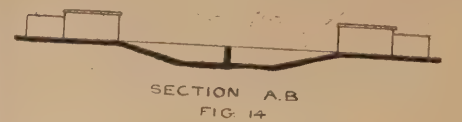
Placed symmetrically with the above is a

* This series deals with the construction of the Cattle Markets and Abattoirs of La Villette and La Rive Gauche, Paris.

building U. (Fig. 1), quite similar in design. The front portion is the Grande Salle de Reunion, a large hall, with arcading and gallery over. The back portion is used as offices for the "Regie," or city tolls.

The two small buildings V. and W. (Fig. 1) are restaurants.

On the eastern side of the market for pigs



and calves is the Parc de Comptage, X. (Fig. 1), or counting barriers for animals brought by the railway. They are similar in principle to those previously described.

Adjoining these is a small building Y. (Fig. 1), used as offices for the staff of veterinary inspectors, and another Z. (Fig. 1) for the offices of the octroi.

The small building A¹ is a slaughter house for animals condemned as unfit for food, or those of whose condition doubt exists.

This is the only slaughter-house on the south side of the canal. The animals are killed and then examined by a veterinary inspector, and passed or condemned as found necessary.

The building B¹ (Fig. 1) is used as offices for the veterinary staff, C¹ (Fig. 1) as a weighing house, and D¹ as a stable for condemned cattle and tool shed.

Between the markets and canal are a number of buildings, commencing at the northern end with E¹, the offices of the railway company.

(To be continued.)

MR. GEORGE W. WILLCOCKS, M.I.C.E., one of the inspectors of the Local Government Board, has held a public inquiry at Leamington relative to the application of the Corporation to borrow £5500 for works of water supply, and £5010 for public walks and gardens, which are already so distinctive a feature of Leamington.

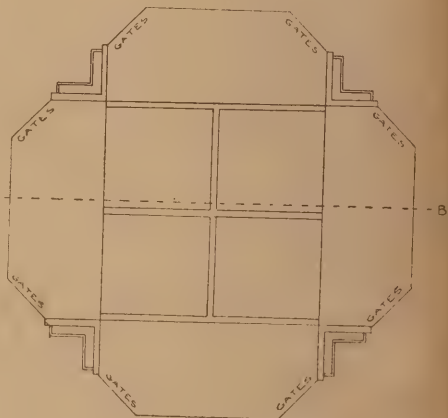
The Royal Agricultural Show.

NOTES ON BUILDING TRADE EXHIBITS.

IN a sense it is inaccurate to say that the Royal Agricultural Show is this year being held at Birmingham, for the Show is at Four Oaks. But the manner is for the Show to take the name of the nearest big town and be called thereafter. Of course, for the practical part of the business the Show may be fairly described as at Birmingham, for the Midland Capital is the object of the bulk of the visitors, who may be sure that once at Birmingham they are not likely to have much difficulty in getting from there to the Show. Many of the firms exhibiting in the implement yard are showing goods of interest to our readers, and we give below particulars of some of the stands, more directly connected with the building trade:—

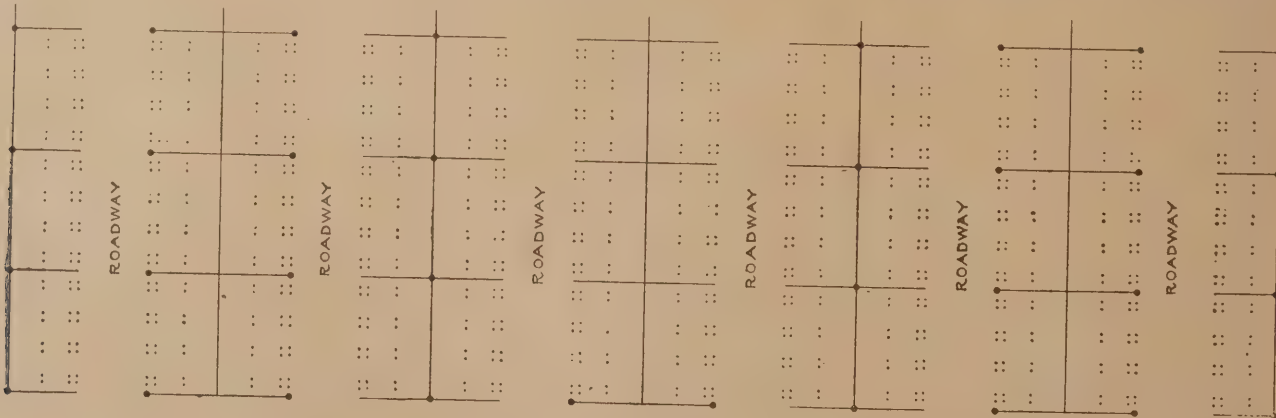
MESSRS. NEWTON CHAMBERS AND CO.
THORNCLIFFE IRONWORKS.

This Company has one of the biggest of the many big stands, and the goods shown are fairly representative of the variety of needs with which the well-known Thorncliffe Works are prepared to cope. Chief among the whole



PLAN OF DRINKING POND
FIG. 13

are the new "Fervent" Radiators, which are made in every variety of size so as to meet almost any imaginable requirement of the public. The sizes, in fact, run from the modest 5ft. of heating surface, to be had for 3s., up to the more ambitious one that gives 120ft. of heating surface for £18. A plentiful supply of well fitted-up cooking ranges is calculated to make one's mind turn to thoughts of lunch. It must certainly be granted that these ranges deserve every consideration. The Company has not confined its attention to the smaller kitchens, but has gone in most successfully for the big work required for asylums and institutions generally, having, in fact, now in hand a range of cooking fittings for the



PORTION OF PLAN
FIG. 9

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

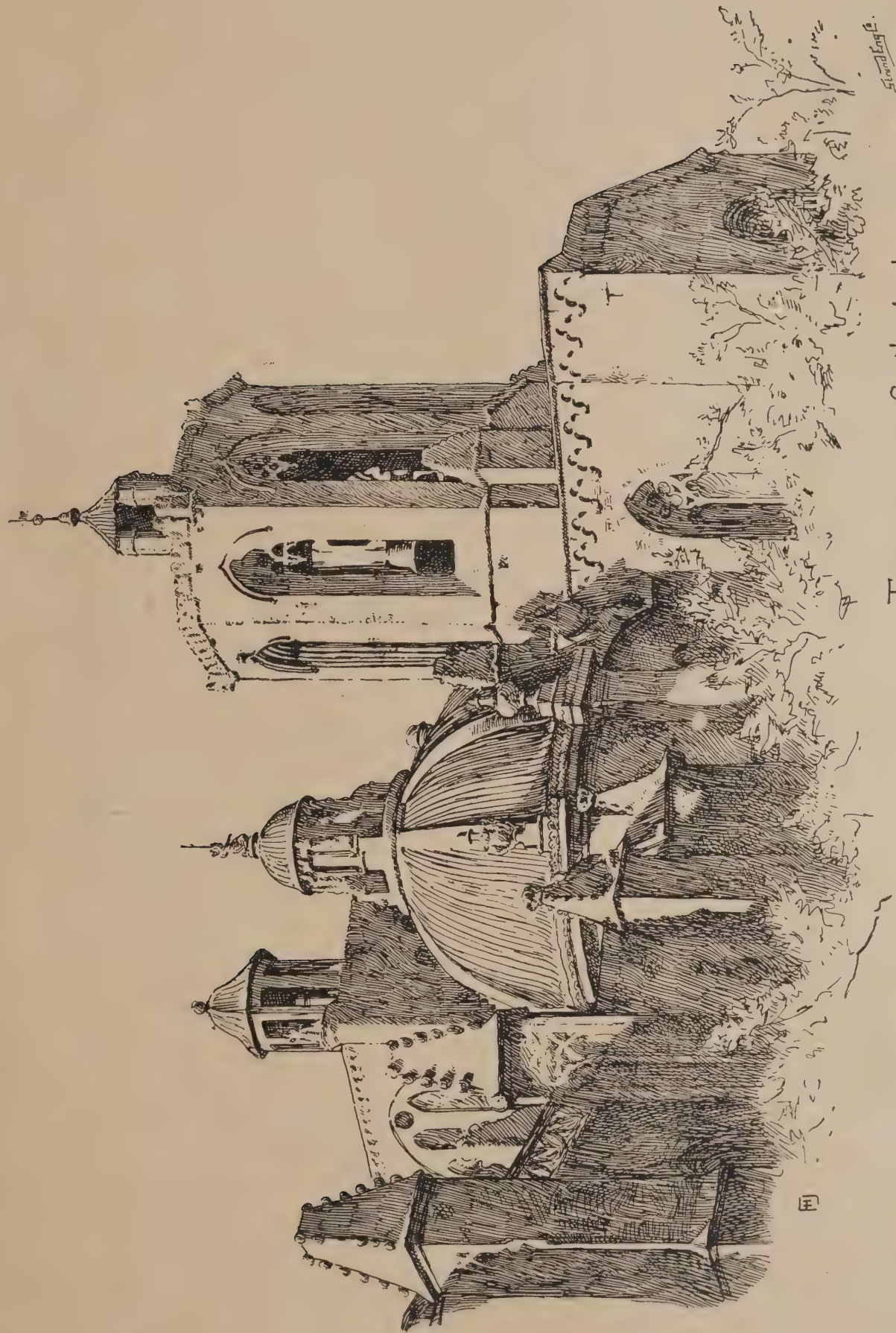


A
Corner
of the
Cloister

Tarragona.

SPAIN: ITS PICTURESQUE CITIES AND MONASTERIES.

DRAWN BY F. HAMILTON JACKSON.



Tarragona Cathedral
from the S.W.

SPAIN: ITS PICTURESQUE CITIES AND MONASTERIES.

DRAWN BY F. HAMILTON JACKSON.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

Staffordshire County Asylum at Cheddleton. Specially noticeable was a stable fitting, on which, by the way, so as to be quite up to date, was inscribed the name of the horse to occupy the stall, "Jeddah," and in which was shown for the first time Dawson's patent ball-bearing stall fixing, the device which will infallibly prevent a horse from getting his leg over the rope, with the awkwardness consequent thereon. This stable, as shown with its fittings, is priced in the list at £66, and it was certainly in every respect complete. Other items in the exhibit were the Kingston boiler, also dome-top boilers and saddle boilers, and portable furnace boilers. The more directly agricultural element was, of course, specially to the front, with various garden rollers, vases, seats, etc., altogether making a most effective and representative display.

MESSRS. G. F. BRAGGINS AND CO., OF BANBURY.

A very striking and attractive stand is that of this firm, who show several handsome gates for farm and park. The variety of design and substantial workmanship are alike excellent, and there is a rural suggestiveness about the exhibit that one misses in many other stands, even where it would appear to be most inevitable.

MESSRS. TANGYES LIMITED, BIRMINGHAM.

Petroleum engines are the main feature of the stand of this Company, and a very imposing stand it is, occupying a large amount of space, and extending to a considerable depth. Gas engines are also shown in great force, and the welcome legend "Sold" on not a few of the engines testifies to the success of the exhibit.

THE CANNON HOLLOW WARE COMPANY LIMITED.

The Sanitary Department of this Company is less strongly shown than it deserves, but at an agricultural show this is easy to understand, and the general merit of the exhibit is not small. The grindstones of the Company are the main feature, and there are about two dozen of these in various sizes. Several specimens of the Company's "Porseliron" ware are displayed.

MESSRS. WEYMAN AND HITCHCOCK, CHELTENHAM.

The "Trusty" Oil Engine is shown at Stand 372, and is well displayed. The small portable engine just outside the stand makes itself heard as well as seen, and the rest of the exhibit is carefully explained by a staff from Cheltenham, whose courtesy is fully equal to all the traditions of the Show, and who are in sufficient numbers to cope with almost any number of visitors that are likely to be at any one stall at the same time. The Company's catalogue gives the results of trials specially made of these engines some time ago by Mr. Beaumont, from which it appears that the cost of working the engine was about one-third of a penny per hour per indicated horsepower. There are also shown at this stand some of the Company's gas engines.

MESSRS. G. AND F. COUZENS, CARDIFF.

This firm's well-known patent traps and tidal interceptors are shown at Stand 219. We have several times drawn attention in the Journal to these excellent gully traps, and it is enough to say that the stand was receiving considerable attention from the visitors at the Show. The claim of the patentees that by the use of these traps the back-flow of water and sewer-gas is prevented was vindicated, and the method explained, by Mr. Couzens himself.

MESSRS. JOHN S. MILLAR AND SON, ANNAN.

The "Ideal" Windmill of this firm, which has been in full use in many of the largest estates in the country for years, is so shown at the Show that he would indeed be a blind man who failed to see it, perched up on the top of one of the steel towers of the firm's make. It is doing excellent work, and, although at the time the writer saw it there was little or no breeze, the mill, nevertheless, was not by any means idle. A 6ft. wheel, 50ft. high, costs £25.

MR. ANDERSON, the contractor for the deepening of the Buckpool Harbour, is pushing on the work, between 80 and 100 cubic yards of material being removed daily from the bed of the inner basin. There are already nearly 5000 cubic yards removed, and the work has been nine weeks in hand. The material is chiefly loosened by blasting, and is being carted to the west end of the harbour to form reclaimed ground.

A REPORT from the Bristol Sanitary Committee refers to complaints made of the practice of discharging refuse dredged from the harbour into the river through the underfall sluices, and recommends that the Docks Committee be instructed to arrange for discharging the dredgings into the Bristol Channel during the months of July, August, and September, when there is a scarcity of water in the New Cut. The additional expense is estimated at £1000. The committee further recommend the leasing of a portion of land at Barton Hill for a Sanitary Authority depot.

A CORRESPONDENT signing himself "A. J. R." writes:—"Our municipal and parochial authorities are not without a sense of humour, although the dwellers in the west of London consider the latest specimen thereof to be a *mauvaise plaisanterie* indeed. The present week is the one selected out of the fifty-two weeks of the year for the repair of Belgrave Square, which at this moment presents for many yards a surface of jagged stones. Surely the stupidest official must know that Belgrave Square contains more traffic in June than in January—perhaps it is because he knows it that he causes costly carriages and valuable horses to do the work of his steam-roller. In Lower Belgrave Street also the same intelligence has been displayed. After allowing the street to become absolutely dangerous for want of repair, the authorities mended it thoroughly about two months ago, and now they have just dug half-a-dozen big holes in it in the process of putting in some new drains, and to-day somebody is running a trench right up the middle of it."

Surveying and Sanitary Notes.

For forty years the Shrewsbury Town Council have been discussing one scheme after another for improving the water supply of the town, and the difficulties in the way seem as insurmountable as ever. The last scheme was to pump the water from the Severn from a higher point than at present, and to filter it, which is not at present done. The cost of the works was estimated at £48,000, and when an inquiry was held, which resulted in the Local Government Board condemning the scheme on the ground that the Severn water, even when filtered, was "highly suspicious," a committee of the whole Council was appointed to consider the next step, and at their meeting Alderman the Hon. W. H. Herbert reviewed the whole question, and proposed that the Local Government Board be asked to receive a deputation from the Council to consider the matter, with the view of coming to some solution.

BEFORE the stipendiary (Mr. Harold Wright) and other magistrates, at the Hanley County Police Court, Richard S. Topham, of London Road, Forest Hill, E.C., the owner of ten cottages known as "Topham's Row," in Bucknall, was summoned under the Housing of the Working Classes Act, 1890, for allowing the houses in question to be in a state so dangerous or injurious to health as to be unfit for human habitation.—Mr. Charles Daniel, Clerk to the Stoke Rural District Council, who prosecuted, said the object of the prosecution was to obtain a closing order in respect of these houses, which were in a wretchedly dilapidated and insanitary state. Four of them were at present untenanted and dismantled, but the other six were occupied, though all were totally unfit for habitation. On March 7th the defendant was served with notice to put the property in repair within two months, and the period was afterwards extended by another month, but nothing had been done.—The stipendiary made an order for all the houses to be closed, and imposed a fine on the defendant of £5 and costs in respect of each case—£56 19s. in all.

A RECENT number of the Ceylon Observer shows that up to the end of 1897 the total expenditure on the Colombo Harbour works amounted to Rs.17,875,355, of which Rs.5,529,916 have been incurred on the two additional breakwaters commenced in 1894. Before the completion of the works, which comprise a graving dock and patent slip, a coaling depot, and the three breakwaters enclosing a harbour of one square mile in extent, the total outlay is expected to reach Rs.2,500,000. The sterling debt of the colony on account of these harbour constructions will be £1,300,000. It will probably be 1902 before everything is finished. If the tea industry continues to flourish the prosperity of the harbour income is assured. If it does not, there might be a serious falling off, although the Colombo harbour and dock, owing to their central position, will always possess an international and Imperial importance.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
July 2	Bideford—Rebuilding Inn	F. Cutland	R. S. Hooker, 12, Bridgeland-street, Bideford.
" 2	Cardiff—Hotel	W. Hancock and Co.	Veal and Sant, Cardiff.
" 2	Chester-le-Street—Hospital	Rural District Council	W. F. Jones, 7a, North-bailey, Durham.
" 2	Stanground—Rebuild Bridge	Hunts County Council	County Surveyor, 151, High-street, Huntingdon.
" 2	Windsor—Alterations to House	Town Council	Borough Surveyor's Office, Helena-road, Office, Public Works, Dublin.
" 4	Arthurstown—Coastguard Station		George Robson, 23, Linthorpe-road, Middlesbrough.
" 4	Eaglescliffe Junction—Residence, &c.		W. H. Hope, Union Offices, Kingston-on-Thames.
" 4	Kingston-on-Thames—Office	Guardians, Kingston Union	F. Summer, Surveyor.
" 4	London, S.E.—Supply of Bricks	Bermondsey Vestry	G. F. L. Giles, Belfast.
" 4	Belfast—Electric Light Station	Harbour Commissioners	G. T. Hine, 35, Parliament-street, S.W.
" 4	Horton—Asylum Superstructure	Asylums Committee	Waller and Son, 17, College-green, Gloucester.
" 4	Gloucester—Library, &c.	Corporation	W. Jacques, 2, Fen-court, E.C.
" 5	West Ham—Cleansing and Repairing Works	Board School	

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
July 6	Tottenham, N.—First Section of Hospital...	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 6	London—Section of Hospital ...	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 6	Thingoe—Infirmary ...	Union ...	T. D. Atkinson, St. Mary's-passage, Cambridge.
" 5	Haverford West—Vagrant Wards ...	Guardians ...	D. E. Thomas, Victoria-place, Haverford West.
" 5	Southampton—Cart Shed ...	Corporation ...	W. B. G. Bennett, Borough Engineer, Southampton.
" 5	Worcester Park—Engineer's Cottage ...	Epsom Rural District Council	H. D. S. Wood, 157, Wool Exchange, Coleman-street, E.C.
" 5	Rhosgadfa—School ...	Llanwnda School Board	Post Office, Rhosgadfa.
" 5	North Brierley—Hospital ...	Hospital Board	Castle and Clough, Cleckheaton.
" 5	Halifax—Offices and Shops ...	Governors ...	L. H. Marrott and Son, West Park street, Dewsbury.
" 5	Worcester—Laboratory at Grammar School	Union ...	A. H. Parker, 5, Foregate-street, Worcester.
" 6	Edmonton—Infirmary ...	Town Council ...	T. E. Knightley, 106, Cannon-street, E.C.
" 7	Kingston-on-Thames—Concrete Chamber ...	Committee ...	Borough Surveyor, Kingston-on-Thames.
" 9	Bury St. Edmunds—Chapel ...	Hornsey Urban District Council	T. Lingoe, Union House, Bury St. Edmunds.
" 11	Grangemouth—Cottage ...	School Board ...	G. Deas Page, Old Glebe-chambers, Falkirk.
" 11	London, N.—Fire Engine Station ...	London County Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
" 11	Cupar Angus, N.B.—Farmhouse ...	Municipality ...	Hope and Co., 119, Princes-street, Edinburgh.
" 14	Rochester—Schools ...	John Kenny ...	G. E. Bond, High-street, Rochester.
" 15	Bradwell—Coastguard Building ...	Francis McKernan ...	Director of Works Department, Admiralty, W.C.
" 18	Vauxhall—New Bridge ...	Bank of Liverpool Ltd.	Engineer's Department, County Hall, Spring-gardens, S.W.
" 20	Scunthorpe—Chapel ...	William Young ...	J. N. Dossan, 2, Manor-street, Hull.
" 24	Belem, Para, Brazil—Slaughter-house and Yard, &c.	Mrs. Cawthorn ...	Commercial Department, Foreign Office, S.W.
No date.	Belfast—Dwellings ...	Michael Martin ...	W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Burton Latimer—Club Premises ...	E. Ridley ...	Nosley and Anderson, Northampton.
"	Belfast—Public House ...	Committee ...	Settle and Farmer, County-square, Ulverston.
"	Dalton—Bank ...	W. Simmons ...	E. Jones, 10, Albion-street, Hanley.
"	Fenton—Additions to China Works ...		H. Hugginson, Architect, Carlisle.
"	Haltonwhistle—House ...		W. Hall, 12, St. Giles-street, Northampton.
"	Hanslope—Schools ...		T. E. Crossling, Stanley, R.S.O., Durham.
"	Hobson—Houses ...		Mr. Phillips, Sirhowy House, Maesycwmmer.
"	New Tredegar—House ...		Wm. Sugden and Sons, Leek.
"	Quorn—House, &c. ...		T. E. Crossling, Stanley, R.S.O.
"	South Moor—Block of Property ...		S. S. Bayley, Post Office, Springfield, near Dudley.
"	Rowley Regis—Church ...		T. E. Crossling, Stanley, R.S.O., Co. Durham.
"	Tantobie—House ...		T. Barker, 5, Bond-street, Bradford.
"	Laister Dyke—Warehouse ...		Holton and Fox, Westgate, Dewsbury.
"	Pudsey—Club Buildings ...		R. A. Reid, District Council Offices, Hanwell.
"	Hanwell—Cottage Hospital ...		W. Simmons, Victoria-chambers, Colchester.
"	Halstead—House ...		
ENGINEERING—			
July 2	Eton—Sewers, Tanks, Pumping Station, &c.	Urban District Council	Bailey, Denton, Son, & Lawford, Palace-chbrs., Westminster.
" 4	Grangemouth, Scotland—Dock Extension ...	Caledonian Railway Co.	Sir J. W. Barry, 21, Delahay-street, Westminster.
" 4	Radomir, Bulgaria—Construction of Railway	Ministry of Public Works	Commercial Department, Foreign Office.
" 4	Edinburgh—Reservoir, &c. ...	District Board of Lunacy	J. and A. Leslie and Reel, 724, George-street, Edinburgh.
" 6	Stockport—Oil Tank, &c. ...	Town Council ...	S. Mennier, Engineer, Stockport.
" 7	Leicester—Supply and Fixing of Grids	Gas and Electric Lighting Committee	A. Colson, Engineer, Millstone-lane, Leicester.
" 13	Abergwyffil—Filter Tank ...	Urban District Council	G. F. Lambert, Bridgend.
" 16	Nelson—Reservoirs ...	Corporation ...	Town Hall, Nelson.
" 18	Amsterdam—Cranes ...	Town Council ...	Municipal Printing Office, Amsterdam.
No date.	Leicester—Construction of Engine ...	Corporation ...	A. Colson, Millstone-lane, Leicester.
IRON AND STEEL—			
July 6	Huddersfield—Pipes ...	Corporation ...	T. and C. Hawksley, 30, Great George-street, Westminster.
Aug. 2	Ottawa, Canada—Supply of Steel Rails	Government of Western Australia	L. H. Jones, Dept. of Railways & Canals, Ottawa, Canada.
" 23	Coolgardie, Australia—Steel Pipes ...	Corporation ...	Agent-General, 15, Victoria-street, Westminster, S.W.
No date.	Belfast—Cast-iron Pipes ...		V. A. H. McCowen, City Engineer, Marquis-street, Belfast.
ROADS—			
July 4	Hendon—Road Making, &c. ...	Urban District Council	S. S. Grimler, Hendon, N.W.
" 4	Harrow—Supply of Gravel ...	Urban District Council	T. Charles, Surveyor, Harrow.
" 4	London, N.—Road Making	Stoke Newington Vestry	G. Webb, 126, Church-street, Stoke Newington.
" 5	Southgate—Concrete Paving ...	Urban District Council	C. T. Lawson, Council-chambers, Palmer's Green, N.
" 7	Jarrow—Footpaths ...	Urban Sanitary Authority	J. Petrie, Borough Surveyor, Jarrow.
" 7	Larne—Two Roads ...	E. Coey ...	W. J. Fennell, 11, Chichester-street, Belfast.
" 4	Smethwick—Road Making ...	Urban District Council	C. J. Fox Allen, Public Buildings, Smethwick.
" 19	London—Asphalte Paving ...	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
No date.	Aberdeen—Road Works ...	Corporation ...	W. D. Jack, Town House, Aberdeen.
"	Middlesborough—Road Works	Corporation ...	F. Baker, Municipal-buildings, Middlesborough.
SANITARY—			
July 2	Brierfield—Sewer ...	District Council	J. T. Landless, Station-buildings, Nelson.
July 2	Eton—Sewerage Works ...	Urban District Council	Bailey, Denton, Son, & Lawford, Palace-chbrs., Westminster.
" 4	Caepphilly—Sewers ...	Urban District Council	A. C. Harpur, Council Offices, Caepphilly.
" 4	Walsall—Sewers ...	Rural District Council	J. C. Wilcox, Union Chambers, 63, Union-st., Birmingham.
" 4	Acton—Sewers ...	Urban District Council	H. J. Ebbetts, 242, High-street, Acton, W.
" 4	Smethwick—Sewering, &c. ...	Urban District Council	C. J. Fox Allen, Surveyor, Public-buildings, Smethwick.
" 5	Wheatthampstead—Sewers	Rural District Council	T. Foster Woodman, St. Albans.
" 18	Barnet—Sewers ...	Urban District Council	W. H. Maysbridge, 40, High-street, Barnet.
" 19	Houley—Sewerage Works ...	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 19	Houley—Sewer ...	Sewerage Board	W. H. Radford, Angel-row, Nottingham.
" 19	South Crosland—Sewers ...	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 20	Boston Spa—Sewers ...	Wetherby Rural District Council	J. Waugh, Sunbridge-chambers, Bradford.
" 20	Wolverhampton—Sewers ...	Sewerage Committee	J. W. Bradley, Town Hall, Wolverhampton.
No date.	South Moor—Sewer ...	Asylum Committee	T. E. Crossling, Stanley R.S.O., Co. Durham.
"	Sunderland—Drainage Works		J. Little, Viaduct-chambers, Carlisle.
FURNITURE—			
July 6	London, S.W.—Furniture, &c. ...	Asylums Committee, L.C.C.	Asylums Committee, 21, Whitehall-place, S.W.
PAINTING AND PLUMBING—			
July 2	Ilkeston—Cleaning and Painting Schools ...	School Board ...	W. Lissett, Town Hall, Ilkeston.
" 4	Kippox—Painting Schoolroom ...	School Board ...	C. A. Phillips, Clerk, Castleford.
" 5	Sheffield—Painting Schoolroom ...	School Board ...	School Board Offices, Sheffield.
" 5	Egremont—Painting Schools ...	School Board ...	H. J. Whiteside, 47, Duke street, Whitehaven.
" 5	Wakefield—Painting Stores, &c. ...	Wakefield Industrial Society	Society's Office, Bank-street, Wakefield.
" 6	Paddington—Painting Workhouse, Infirmary, &c.	Guardians ...	C. H. Sim, 8, Craig's-court, Charing Cross, W.C.
" 8	Wanstead—Painting Schools ...	School Board ...	J. T. Bressy, 70 and 71, Bishopgate-street Within, E.C.
No date.	Colmanhar—Cleaning and Decorating School		Mr. Barton, Benerley-street, Colmanhar.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
July 2	Warrington—Designs for Police Station, Court House, &c.	£100, £50, £25...	Town Council.
" 16	Beverley—Extension of Offices	.....	J. Bickersteth, County Hall, Beverley.
" 27	West Hartlepool—Refuse Destructor	.....	J. W. Brown, Borough Engineer, West Hartlepool.
" 27	Wivenhoe—Water Supply Scheme	.....	Urban District Council.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
" 16	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
No date.	Godalming—Football Stand	£150	Godalming Recreation Club Co. Ltd., Godalming.

PROPERTY & LAND SALES.

HAMPTON and SONS beg to announce that their AUCTIONS of LANDED ESTATES, town and country Residences, Investments, Business Premises, and other Properties, are held MONTHLY at the MART, Tokenhouse-yard, E.C.

Auctions can also be held on other days, in town or country, by arrangement; also Sales and Valuations of Furniture, Pictures, Farming Stock, Timber, &c.

June List of Estates, town and country Residences, Hunting Boxes, and Sporting Properties can be had gratis on application to Hampton and Sons (Ltd.), 1, Cockspur-street, S.W., or by post, three stamps.

Auction and Estate Offices, 1, Cockspur-street, Pall Mall, S.W.

FINCHLEY ROAD.

Occupying a pleasant position in this favourite residential locality, close to Marlborough-road Station, with frequent service of trains to the City and West End, and within a short drive of Regent-street.

The conveniently placed, double fronted, detached Family Residence and Stabling, known as Bishop's Lodge, 35, Finchley-road, N.W., substantially built, and standing well back from the road, approached by a carriage-sweep. Held for 39 years unexpired from Michaelmas next, at a ground rent of £20 per annum. Possession on completion of the purchase.

Also the Two well-placed and attractive, semi-detached Houses, Nos. 5 and 15, Finchley-road, N.W., each containing six bed rooms, bath room, three reception rooms, conservatory, and usual domestic offices. No. 5, Finchley-road, is let upon a five years' lease from September, 1897, at £90 per annum, thus forming a good investment. Both held on lease, having an unexpired term of about 23 years, at a ground rent of £11 per annum each. Vacant possession of No. 15 on completion of purchase.

HAMPTON and SONS will SELL the above by AUCTION, at the Mart, E.C., on WEDNESDAY, JULY 13, 1898, at 2 o'clock, in three lots (unless previously disposed of by private treaty). Detailed particulars and conditions of sale can be had of Messrs. Foss and Leddam, Solicitors, 5, Fenchurch-street, E.C.; and of the AUCTIONEERS, 1, Cockspur-street, S.W.

Close to railway stations on L. and N.W., Midland, Met., and N.E.; also bus routes to City and West-end.

MR. LEOPOLD FARMER will SELL by AUCTION, at the MART, E.C., on WEDNESDAY, JULY 27th, 1898, at Two o'clock, the following:—**WEST HAMSTEAD.**—With possession.—3, Sherif-road, West-end-lane.—Freehold detached Residence, having five bed and dressing rooms, bath, two reception rooms, conservatory, usual offices. No basement.—Solicitors, Messrs. Fytche, Field, and Baker, 23, John-street, W.C.

ST. JOHN'S WOOD.—With possession.—117, Alexandra-road.—Long Leasehold Residence, having six bed and dressing rooms, bath, three reception rooms, usual offices. Good garden.—Solicitors, Messrs. Yeo and Co., 41, Finsbury-pavement, E.C.

Particulars and conditions of sale at the Mart, E.C.; the respective SOLICITORS; and the AUCTIONEER, 46, Gresham-street, E.C., and Kilburn, N.W.

Little Ilford, within a few minutes from East Ham, Ilford, and Manor Park Stations.—Fourth Auction Sale.

THE PREMIER LAND COMPANY

(Limited) having sold every lot at their previous auction sales, will SELL by AUCTION, at the PUBLIC HALL, Plashet-grove, East Ham, on WEDNESDAY, JULY 20th, 1898, at 7.30 in the evening precisely, 120 valuable FREEHOLD PLOTS, including frontages to Rectory-road and Elsenham-road, also valuable shop plots in Church-road. No title or land tax. Payment by instalments, spread over 4½ years, if desired. Possession on payment of deposit. Free conveyances. The new roads are formed and kerbed, and have separate sewers and surface water drains.—Particulars, with plan and conditions of sale, may be obtained, when ready, at the place of sale; the principal hotels in the neighbourhood; of the PREMIER LAND COMPANY (LIMITED), 10, New Broad-street, E.C.; Messrs. TAYLOR and TAYLOR, Solicitors, 10, New Broad-street, E.C.; or of Mr. H. A. RAWLINS, Surveyor, 45, Queen Victoria-street, E.C.

HILL PARK ESTATE, Westerham, Kent, twenty miles from London, 500ft. to 700ft. above sea level.—FREEHOLD choice BUILDING SITES for SALE on this rising, high-class residential estate, from one acre and upwards. Chalk subsoil; magnificent views. Also excellent, well-built Residences to be Sold or Let. Rents from £50 to £250 a year. Water supplied by the West Kent Water Company. Fast through trains to and from City daily.—Apply to the RESIDENT AGENT, on the Estate.

LAND, for the erection of Residences, in the choicest part of Surrey, on the hills, beautifully timbered, with convenient railway access.—PLOTS, varying from one to twenty acres, to be LET or SOLD, for building purposes.—Apply WEATHERALL and GREEN, Surveyors, 22, Chancery-lane.

TO BUILDERS.

The Freeholder of a large suburban Estate (S.W.) wishes to meet with ONE or TWO BUILDERS accustomed to building good-class suburban property of from £60 to £120 a year rental. Main road, prettily wooded sites for houses. Plenty of ground to each plot, several having tennis lawns; main drainage; cricket and tennis clubs and three golf courses within a mile. Eight miles from Royal Exchange. Some shop plots adjoining railway station on main road. The land will be sold or let with restrictions, and advances can be had. Unquestionably one of the best things going at the present time for the right man.

Freeholder's Surveyors and Architects, Messrs. CHESTERTON and SONS, 51, Cheap-side, E.C.

Important Sale of Building Land, Shop and House Property, and short Leasehold House and Stabling, for occupation.

C. RAWLEY CROSS and CO. will SELL by AUCTION, at the MART, Tokenhouse-yard, E.C., on MONDAY, JULY 4th, at TWO o'clock, the following:

VALUABLE BUILDING SITE, having a frontage to Uxbridge-road, Shepherd's-bush, of about 266ft., and to Old Oak-road of about 250ft., ripe for the erection of ten detached or semi-detached residences, with long gardens, for which there is a great demand. Held on lease direct from the Ecclesiastical Commissioners, at a nominal ground rent of £2 per annum.—Solicitor, GUY ELLIS, Esq., 11, Lincoln's-inn-fields, W.C.

Unusual opportunity of acquiring a high-class Marine Freehold Residence at Bognor-on-Sea.—Purchasers need only pay a deposit of 10 per cent., the balance by half-yearly instalments extending over nine years.—The imposing House, No. 2, Park-terrace, in an exceedingly pleasant position on the esplanade, facing the sea. It contains eight airy bedrooms, four spacious reception rooms, and ample domestic offices. Suitable for a high-class boarding house. Also Freehold Houses, 3 and 4, Lansdown-place; let at £65 and £70.

MR. GEORGE F. HARRINGTON will SELL the above by AUCTION, at the MART, London, E.C., on JULY 26th, at TWO, in three lots.

Particulars of W. J. MYATT, Esq., Solicitor, 23, Abchurch-lane; and of the AUCTIONEER, 16, Abchurch-lane, E.C.

By order of the Trustees of the late Robert James Chaplin, Esq.—Catford.—To Builders and others.—10a, or 18p, of Freehold Land, situate in a first-class position, with possession at Christmas next, when part will be available for building, having existing frontages; also a Freehold Ground Rent of £30 a year, secured on residences, in the same neighbourhood, which will be Sold by Auction by

MR. GEORGE F. HARRINGTON, at the MART, E.C., on JULY 26th, at TWO, in two lots.

Particulars of Messrs. BADHAM and WILLIAMS, Solicitors, 3, Salter's Hall-court, E.C.; and of the AUCTIONEER, 16, Abchurch-lane, E.C.

MESSRS. GREEN and SON, AUCTIONEERS and SURVEYORS, 23 and 29, St. Swin's-lane, London,

Beg to announce that their SALES by AUCTION of FREEHOLD, LEASEHOLD, and COPYHOLD PROPERTIES, Ground Rents, Life Policies, and Reversions take place at the MART on the LAST FRIDAY in the MONTH, and on such other occasions as may be arranged.—Particulars are invited 21 days prior.

MESSRS. GREEN and SON undertake SURVEYS and VALUATIONS of LAND and HOUSE PROPERTIES, as well as Machinery and Plant, for

Ratings, Compensations, Partnerships, Assessment Appeals, Estate Duties, Dilapidations, Fire Losses, Mortgages, and other purposes.

Estates managed and rents collected under Receiver-ship and other powers.

MESSRS. GREEN and SON invite the attention of persons requiring money on mortgage to their

MORTGAGE LIST, founded in the year 1853 (entered at Stationers' Hall), which contains particulars of sums of money in the hands of trustees and solicitors by whom they are instructed to obtain securities.

Auction, Land, and Estate Offices, 23 and 29, St. Swin's-lane, E.C.

SUTTON, SURREY.—FREEHOLD BUILDING LAND for SALE, in cheap lots. Practically no restrictions. Roads made, gas and hot-water laid on. Free conveyances. Any sized plots. Payment by instalments if required.—Brooks and HELLER, 8, Old Jewry, E.C.

MESSRS. FORTESCUE and BRANSON have received instructions to SELL by AUCTION, at the MART, Tokenhouse-yard, E.C., on MONDAY, JULY 4th, 1898, at two precisely:

The four long Leasehold Dwelling Houses and Laundries, known as 6, 20, 22, and 24, Wendell-road, Shepherd's Bush. Let and producing £180 per annum, tenants paying rates and taxes. Held for long terms at moderate ground rents.—Solicitors, Messrs. Church, Rendel, Toild, and Co., 9, Bedford-row; and Messrs. Ford, Lloyd, Bartlett, and Co., 38, Bloomsbury-square, W.C.

By order of the Executors of the late Mrs. Shepperson.—A charming double-fronted Residence, with room to erect a stable at the rear, known as 17, Rylett-road, Ravenscourt Park. Let at £60 per annum. Held on a long lease, at a moderate ground rent.—Solicitors, Messrs. Fearless and Sons, East Grinstead.

Particulars and conditions of sale of the respective SOLICITORS; at the Mart; and of the AUCTIONEERS, 54A, Goldhawk-road, Shepherd's Bush, W.

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E.

R.I.B.A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum)

ARCHITECTURAL INSTITUTE and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence, personally or in residence. Fourteen first places.—G. A. T. MIDDLETON, 19, Craven-street, Strand, W.C.

WATERPROOF COVERS, made from very best Navy canvas, 12ft. by 9ft. 15s.; 15ft. by 9ft. 18s. 9d.; 15ft. by 12ft. 25s.—Any size, at 1s. 3d. per square yard, can be sent on approval from H. J. GASSON, Government Contractor, Rye.

APPOINTMENTS VACANT.

TRAVELLER WANTED by J. H. Sankey and Son, Lime, Cement, Brick, Slate, Sanitary, and Fire-clay Goods Merchants, Essex Wharf, Canning Town, for East Middlesex District. Must be familiar with all goods, and able to wait on architects, engineers, builders, &c.—Apply fully to Head Office, as above.

ARCHITECT and SURVEYOR'S ASSISTANT REQUIRED. Must be a neat and quick draughtsman, and able to write specifications. Preference to one with knowledge of quantities and measuring work.—Send specimen drawings, age, salary, and particulars, F.R.I.B.A., 7, Bank-buildings, Ilford, Essex. 1

ARCHITECTURAL ASSISTANT (fully qualified) WANTED at once. Good at perspective and details.—Write, stating age, experience, salary expected, with copies of testimonials, to ARCHITECT, 3, Hyde-gardens, Eastbourne.

CLERK WANTED, in Builder and Contractor's Office. Must be good writer and correspondent, and quick and accurate at figures; accustomed to extending quantities (not pricing out), ordering materials, abstracting time sheets and accounts. Must be early riser.—Write, giving age, references, and salary required, to J. W. WHITE, High Barnes Works, Chester-road, Sunderland.

WANTED, BUILDER'S (Horticultural) ASSISTANT MANAGER. Practical man. Able to take off quantities, make working drawings, prime cost, &c., of conservatory and greenhouse work, iron and wooden buildings, &c.—Apply, stating age, salary required, and experience, to WRINCH and Sons, St. Lawrence Works, Ipswich.

COSTING CLERK REQUIRED, accustomed to Builder's or Engineer's office. Must be quick at figures. One with a knowledge of architectural drawing preferred.—Address, stating age, salary expected, with copies of testimonials, to Box 753, BUILDERS' JOURNAL Office.

MASON.—WANTED, good, soft-stone BANKER HAND, used to alabaster.—Wm. VICKERS, Sculptor, 221, West Regent-street, Glasgow.

APPOINTMENTS WANTED.

YOUNG ARCHITECT, A.R.I.B.A., DESIRES to ASSIST others in the PREPARATION of DRAWINGS at his own office. G. SCORER, 23, Newman-street, W.

SITUATION as CLERK of WORKS REQUIRED; thirty years' practical experience; several architects' references as to character and capabilities.—Address, W. EDWARDS, The Lynches, Shalford, Guildford.

ASSISTANT seeks ENGAGEMENT in First-class ARCHITECT'S OFFICE, at small salary, with view to buying future partnership; Great Britain or abroad.—Address, C., Alma House, Long Eaton, Derbyshire.

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"GRANITIC STONEWARE" Pipes.

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All the "Granitic Stoneware" Pipes are made from "Stoneware" Clays, of which we are the Sole Proprietors. The Clays are carefully selected and blended to insure a hard, dense, **impervious and imperishable** body, specially adapted for **Sanitary** purposes. The Pipes have a "toughness" as opposed to "brittleness," which is not possessed by any other Stoneware Pipes. They have been proved to withstand the highest crushing and bursting pressures under tests by Kirkaldy and other authorities at home and abroad. They are made by the most improved Patent Machinery and are highly approved for their uniform superior quality. All the Pipes are stamped with the Trade Mark, "Granitic Stoneware," as above.

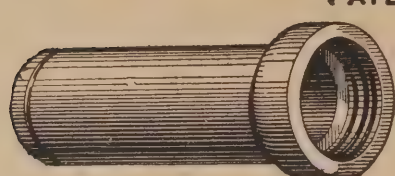
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All sizes to 24in. diameter of full Standard thickness, and of any length up to 3ft. for 6in. and upwards.

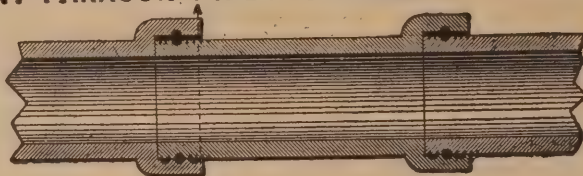


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SECTION THROUGH

Sound Portland Cement Joints to stand any test. True alignment of the Invert and Firm Rest. No obstructive ledges at Invert as with ordinary Socket Pipes. Free Flow. No Stoppage. Full Capacity of Sewers and Drains maintained.

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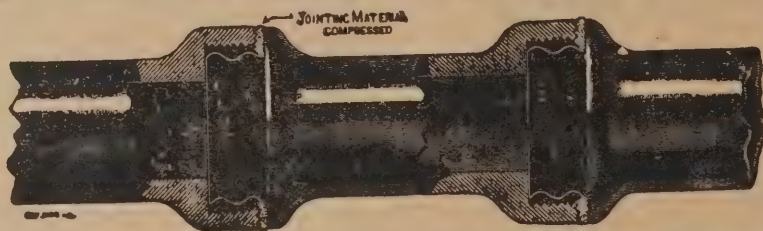
The **Patent Paragon Pipes** are superseding the **Ordinary Socket Pipes**. They are being specified for important Sewerage and Drainage Work in all parts for Government, Corporations and Sanitary Authorities. They have been used for the new Drainage of Smedley's Hydropathic Establishment, Matlock, Derbyshire, and the Royal Opera House, Covent Garden, London, &c.

To meet the requirements of **Sewerage and Drainage** according to circumstances, the **Patent Paragon Pipes** are made in **three** forms:—(A) With ordinary depth of Socket for Surface Water Drains, &c.; (B) With **deep** Sockets for **Sewers and House Drainage** and (C) With **extra deep** Sockets for the Best Class of Work.

When **specifying**, the Name should always be given in full, as **Patent Paragon Pipes A, B, C**, according to the kind required.

SYKES' PATENT JOINT PIPES.

THE MOST RELIABLE
PIPES FOR MAIN SEWERS
IN WATER-LOGGED
GROUND.



WATERTIGHT JOINTS
MADE WITH THESE
PIPES WHEN ENTIRELY
SUBMERGED.

The Screw Joint ensures true alignment of the Pipes. The **Patent Jointing Material** is **impervious and imperishable**. It sets slowly and yields for a time to any settlement of the Pipes in bad ground. It cannot enter the pipes and cause obstruction therein, as in grouting. Sykes' Patent Joint Pipes have made Watertight Joints in water-logged ground where other Patent Joints have failed. Easily laid by ordinary Pipe-layers. Bends and Junctions easily inserted.

Moderate in Cost, Easy to Lay, and the most Reliable of any for Bad Water-logged Ground.

SYKES' PATENT SEWER GAS INTERCEPTOR. The most **EFFECTIVE** for the **PRESERVATION** of **HEALTH**.

JONES & SYKES' PATENT CHANNEL BENDS FOR MANHOLES AND INSPECTION CHAMBERS.

SANKEY'S PATENT DEEP INTERCEPTING GULLY, with Galvanised Bucket to hold Detritus. Cannot untrap.

KEITH'S PATENT DRAIN TESTING AND FLUSHING TRAP. Simple in Construction, efficient and reliable.

SYPHONS, GULLIES, INTERCEPTORS, &c., with **PATENT PARAGON SOCKETS**, to avoid check to flush in forcing Solids through the Trap and fitted with **SYKES' Patent Screw Stoppers**.

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An Architectural Causerie.

The Principles of Art.

ANOTHER contribution to the swiftly-growing mass of Ruskinian literature is made in Mr. William White's "The Principles of Art." The book aims at providing, for the use of students and the art-loving public (to use a consecrated phrase), a connected commentary, drawn from the writings

of self; and we are left to wonder, not at the mistakes of the book, but at the amount of research and the deftness of the literary carpentry displayed by its author. To the present and to the coming race of students, no less than to a large section of the public, the book should be valuable, if only in this, that in one admirably printed volume we have a précis of Mr. Ruskin's whole teaching. By reviving interest in the matchless prose, it should send men back to the Ruskin worshipped in youth, though forgotten in the whirl of work in later life. The chief defect in the work is that found in all collections of extracts. The illustrative passages relating to the various artists represented in the museum lose much of their value and interest by being torn from their settings. We lose the sense of proportion, of balance, the rise and fall of interest. The cunningly contrived climax fails of its chief effect when torn from its proper place. Yet, as a guide to the museum

thusiasms, have now been so absorbed by the thinking public, that his evangel has become part of our intellectual life, and we are in danger of forgetting the magnitude of our debt to one who has done so much and sacrificed so much for Art and Literature in England. Mr. White's book therefore is welcome in that it recalls us to our allegiance, and reawakens our gratitude to the most strenuous and influential critic of modern times. H. W.

The People's Bible.

"I say, if you do not feel the beauty of the little gray cottage, which has stood so many storms and evil days, and is still sound and trim; or of the little village church, brimful of the history of six centuries, you cannot feel that of the stately cathedral."—It may not seem amiss, now that Mr. Ellis's address on the life-work of



of the master himself, on the collection in the Ruskin Museum at Sheffield. Those comments, admirably applied and carefully chosen, are strung together by Mr. White's own observations, the result of years of study of the master's writings and their subjects. This is obviously a most difficult, indeed a perilous, enterprise, one needing much enthusiasm and unwearied industry to carry through. The dangers are many and obvious, yet Mr. White has escaped most by a sup-

and a witness to the master's influence, the book could hardly be better. Its purpose is helped by many admirable illustrations, and by the sensible classification of works into schools and styles. Exception may be taken to the use of the term "Art prophet" adopted, though not invented, by Mr. White. It is in no sense applicable to Mr. Ruskin. His genius is surely that of critical interpretation, not prophecy in either sense of the word. His interpretations, his poetic en-

his most intimate friend has been published, to make a few extracts from one of William Morris's latest discourses. (An address delivered at Birmingham, 1894.) And it is well that this short paper should be written to-day, if at all, for we would have everyone know that this, from Kelmscott type, although produced at a price which seems little is yet as perfectly printed as any that came before. There remains, it appears, in the hands of the trustees, the matter of several

lectures, which Messrs. Longman and Co. have undertaken to publish. Whatever conditions were made, the result makes it clear that the parties concerned have desired to put within reach of Morris's public not merely the words of his lectures, but one example at least of his art. There was never a thought of profit in the work of the Kelmscott Press. It is true that the books were expensive, but whoever has called them dear has known nothing of what they have cost. The most that Morris could do in his lifetime was to conclusively prove, by producing examples, that the crafts, one and all, are intrinsically worthy of the love he bestowed upon them. He set up a standard, in short, in this and the other arts, and did so regardless of cost. His lectures, if we are not mistaken, will be cheaper even than this by-and-bye, but as the jewel gains by its setting, there will always be many who will prefer if they possibly can to have his works in this generous form. For here, for half-a-crown only, have we the original type. Its position on the page allows marginal spaces for private love-labour, and the paper will tempt both binder and artist. What Morris said about art was perforce repeated so often, and was moreover so perfectly true, that the mere maxims enunciated are likely in time to become commonplace, but we seem as we read to hear him speak of his love of our country, and in the glimpses we get of this man lies much of the charm of the lectures. There are passages here in abundance which alone would be worth reprinting, but fortunately so inwoven with the thread of the same discourse, and so essential to our dream-picture—the picture memory paints—that we ask for the whole or nothing. "Now perhaps you will say that, even so far, I have not been speaking of the simple unblended work of Nature. That is true." In all old civilised countries, even when we are in the country, out of sight of a single house, the aspect of the place is largely influenced by the work of man: the hedgerows, the road, the lanes leading out of it, the trees which have all been planted by men's hands, the growing crops, the tame beasts and sheep, the banked and locked rivers, all these go to making up the loveliness which lies before us. But, besides all that, it is seldom in England that we can be out of sight of a house, never out of memory of one seen but a little while ago. So here we are brought at once to that transition between works of Nature and of Art, wherein each plays its own part, and which, when they are happily harmonised, produce the greatest pleasure that the eye can have, and appeal most directly to the imagination. For in these landscapes, which include building, we have before us history in its most delightful, and even, I will say, its most instructive, shape. And furthermore, in such landscapes England (in all countrysides which have not been ruined by our artificial poverty) is fruitful; for both the circumstances of life in the Middle Ages in England, and the genius of our forefathers, led them specially to what I should call the embroidery of the general face of the country. If we lacked, as we did, the romance of the great walled towns of the Continent, we had as a compensation abundance of ancient villages, with their small but beautiful churches, full of individuality and character, and their generously built manor houses and homesteads, which, between them all, once made an English countryside a special treasure not to be seen anywhere else." E. R.

A new post office in Perth has just been opened.

The Bishop of London last week performed the ceremony of laying the foundation stone of the new Church of St. Simon's, Peter's Park, Paddington. The church, when erected, will seat 600 people, the cost being £4500.

STAIRCASES.

MODERN Domestic Architecture is more remarkable for utility than for picturesqueness; and the poet who wrote of the "long unlovely street" might even more justly have spoken of the "tall unlovely blocks of flats" which are now to be seen on every hand. As the external embellishments of the old sixteenth and seventeenth century houses—the gables, the wings, the picturesque groups of chimneys, are sternly banished from our present day abodes (where the architect's chief ambition appears to be that of squeezing as many human beings as possible into one given space, as the honey cells are fitted into a bee's comb); so many of the space engrossing but attractive internal structural arrangements of days of yore have vanished from modern mansions. The huge stone well which contains the stairway of a block of flats, or the

MEAN NARROW FLIGHT OF STEEP STEPS

which represents, says the *Globe*, the staircase of many an expensively-rented London house, cannot be compared with the massive picturesque structures by which our ancestors, a couple of centuries or so ago, ascended to the upper chambers of their abodes. The staircase of an ancient house was often its most picturesque internal feature, and one which irresistibly tempted an artist's pencil. It occupied the centre of the mansion, and was built with lavish disregard of space. Its broad low steps and spacious landing-places were bordered by heavy railings and balustrades, carved and wrought with elaborate skill; sometimes adorned with groups of figures at the turning places. Winding gently round and round, this staircase led up to the top of the house by so easy an ascent that it was not difficult to credit the family tradition of how a fox-hunting squire of the last century had, for a bet, ridden his favourite hunter up and down these broad, shallow steps.

FROM HALL TO ATTIC.

Nearly every old house of any pretensions has a staircase of this description; and there are specimens still lingering even in the metropolis itself. Comparatively few persons know that what may be called "an historic staircase" is still existent in the house which Sir Joshua Reynolds once occupied near Leicester Square. If that strongly-made ancient stairway, with its balustrades and its broad low steps, could only enumerate the celebrities who must have ascended it to reach the studio of the famous eighteenth century painter! Up it Johnson must often have rolled; doubtless holding on firmly to the strong low banisters. Angelica Kaufmann's light steps have tripped over those old boards again and again; Garrick—most perplexing and difficult of "sitters"—Mrs. Siddons, all that galaxy of fair women and famous men whose faces still look down upon us from Sir Joshua's canvases, have, in turn, passed up the sturdy heart of oak structure, which remains as firm as ever; although its original makers and users have long ago passed away.

The bust outlasts the throne,
The coin, Tiberius.

According to Charles Lamb, an old house in Norfolk boasts a haunted staircase, in the mansion traditionally occupied by the Wicked Uncle of the "Babes in the Wood," up and down which the ghosts of the murdered children flit at midnight. Is this legend founded upon the true story of that small hidden stairway of the Tower of London; under which, some two centuries after their murder, the bones of Edward V. and his child brother were discovered? There are two distinct descriptions of staircases in old houses. One, the grand, the principal, built of wood or stone, and forming a conspicuous feature and ornament of the mansion. Staircases like these are found at Haddon Hall and similar "stately homes of yore," and are selected by many an artist to illustrate passages in a romance or a poem: as in the case of one edition of Longfellow's works, where the "Old Clock on the Stair" is represented as occu-

pying one of the corners of an ancient staircase landing while on the stairway itself

Groups of merry children played,
Youths and maidens dreaming strayed.

Staircases like these seem associated with all the events of family life; with gambolling children, with happy-faced young folk tripping lightly over their dark boards; with wedding days, when the bride, "crowned with blessings," lingers a little as she passes, for the last time in her maiden life, down the shallow steps of the old staircase, and out from the family roof-tree; with merry parties of youthful descendants, grandsons and granddaughters, racing gaily up the old steps, and pausing to admire the quaint carving of the banister, where the family crest and motto figure upon oaken shields, or grim figures of beasts or men grin at the landing corners. And even the occasional passing of a "funeral train" down that old stairway may link the old structure with some tender memories. But the "escalier dérobé," the back staircase,

THE SECRET STAIRWAY.

has neither pleasant nor affectionate associations connected with it. That narrow, winding flight of stairs (usually of stone), which is almost invariably an adjunct of the "grand staircase" of an important old house, has nothing but mean, sordid, and even discreditable traditions attached to it. Its most respectable use was that of the common domestic service of the house. It is always up a "secret stairway" that the villain of fact or fiction proceeds to his evil works. It was one of the least attractive peculiarities of

OLD-WORLD ARCHITECTURE

that most antique mansions possessed one or more of these concealed stairways; which were craftily contrived to give admittance to rooms apparently secured against all intrusion; so that the unsuspecting owner of the mansion might walk tranquilly up his grand staircase, and bolt and bar himself, with fancied security, into his private apartment; all unaware that the villain was stealthily flitting up some hidden flight of stairs ending at a door concealed behind arras, or curtain, or picture, or panel, which opened direct into his victim's private chamber; whose occupant the villain (thanks to the "escalier dérobé") could now rob or murder at his ease, and depart as discreetly as he came. There are many old staircases which are rich in historical associations. Who can forget the "Giant's Stair" at the Doge's Palace in Venice, down which the head of Marino Faliero is said to have been thrown after his decapitation; or the "Scala Santa" at St. John Lateran at Rome; or the many other

FLIGHTS OF SACRED STAIRS.

which (like those of the "Scala Santa") are only to be ascended upon the knees. The worn flight of stone steps at Canterbury Cathedral is but little changed since the days when Erasmus and Colet watched the crowd of devotees, at the shrine of St. Thomas, painfully scrambling up it in this fashion; for, some three centuries having elapsed since pious knees thus "wore away the stones," it has not been necessary to protect them from attrition with "a stout wooden cover," as Mrs. Trollope, writing in 1841, records had been done to the Scala Santa. Gloomy and terrible are the associations connected with the stairways of many an ancient castle; the narrow-winding turret stairs, up which many a desperate fray has been waged, when "one man held the stair against a host;" or the dark slippery steps which led to the dungeons and the oubliettes. These descriptions of staircases may be "missed without being mourned."

A MASONIC service has been held in Rochester Cathedral with the object of raising funds towards £5000 which is required for erecting a new tower to the cathedral. The cathedral was built by Freemasons, and the original tower, the Architecture of which is still preserved, differed widely from that of the present square tower, erected in 1827. The Dean desires to restore the original design, which shall perpetuate what he considers to be the true architectural taste of the early Masons.



THE NORTH FRONT PENSHPURST

PENSHPURST PLACE.

BY H. INIGO TRIGGS.

THE great Kentish shrine of Penshurst Place is a large and straggling collection of buildings, dating from far back before the time of William the Conqueror, for we learn that in feudal times a fortified house occupied the site of the present buildings, and for two centuries afterwards the manor descended from father to son in the family of the de Penchesters.

In the south chancel of the church there still remains a battered monument to Sir Stephen Penchester, who was buried there in the reign of Edward I.

The manor then passed to Sir John Pulteney (the founder of St. Laurence Pulteney Church, E.C.), who had married the heiress of the de Penchesters. Sir John obtaining permission to "crenellate" in 1341, built extensively, and to him we owe the great hall, undoubtedly one of the finest specimens of a Baronial Hall extant, one glimpse of which gives a more vivid picture of life in the middle ages than any written description. We see it now, as tradition says the Black Prince saw it in a sojourn at Penshurst with the Fair Maid of Kent.

Sir John de Pulteney died without male heirs, and Penshurst passed to Sir John Devereux, who commenced adding a long wing to the house in the time of Richard II. (afterwards finished by the Duke of Buckingham and named "Buckingham Building"). After changing owners frequently, and being successively owned by John, Duke of Bedford, and Humphrey Stafford, Duke of Buckingham, the estate was given by Edward VI. to Sir William Sidney, and so commence the most conspicuous records which rank its eventful history.

The next owner of Penshurst was Sir Henry Sidney, who married Lady Mary Dudley, sister of Queen Elizabeth's favourite, and this alliance is recorded in the buildings by the use of the Dudley arms, the Bear and Ragged Staff, as an ornamentation on the screen in the great hall. Sir Henry fortunately escaped the conspiracy which proved so fatal to many of Lady Mary's relatives for placing Lady Jane Grey on the throne.

About this time was born at Penshurst a Statesman destined to figure so prominently in the politics of his day—Sir Philip Sidney, "the idol of his day." At the early age of 18 he was attached to the English Embassy at Paris, and was made a baron of France by Charles IX. Later in life he wrote his celebrated *Arcadia*; he was knighted in 1583, and in the same year married Frances Walsingham; two years later, having been appointed Governor of Flushing, he bade farewell to Penshurst, destined never again to return, for some months later at the Battle of Zutphen that touching incident occurred, which showed the noblest side of the great man's character, who, when grievously wounded, could give up the water which his

fevered lips so longed for to a dying soldier stretched out on the ground beside him, uttering the memorable words: "Thy necessity is greater than mine." After many days of severe suffering he died at Arnheim on October 7th, 1586. His body was conveyed to England, and, after lying many days in state was interred in old St. Paul's Cathedral. Of Sir Philip Sidney, Southey wrote:

Tread
As with a Pilgrim's reverential thoughts
The groves of Penshurst. Sidney here was born,
Sidney than whom no greater, braver man
His own delightful genius ever feign'd,
Illustrating the groves of Arcady,
With courteous courage and Royal love.

At Sidney's death Penshurst passed to his brother Robert, created Viscount Lisle, Baron Sidney of Penshurst, and later (1618) Earl of Leicester, who married Barbara Gamage. Algernon Sidney, the second son, early in life joined the Parliamentary forces as a Colonel, and distinguished himself at the battle of Marston Moor; he was, however, opposed to the policy of Cromwell and fought only for liberty. After a life of varying fortune, seventeen years of which was spent in exile, he was finally beheaded on Tower Hill in 1683. The estate, after being successively in the hands of the sixth and seventh Earls of Leicester, passed to a Mr. Percy, who married Elizabeth Sidney, the heiress of Penshurst, and by marriage went to Sir Percy Bysshe Shelley, the ancestor of the present owner, Lord de l'Isle and Dudley.

The north front and central gatehouse, through which we enter from the park, was built by Sir Henry Sidney in 1585, the wing to the left on entering was rebuilt in 1834, that on the right is Elizabethan restored. The restoration here and elsewhere has been admirably carried out, the present owner being scrupulously careful of the old buildings; over the entrance gateway are the arms of Edward VI., who gave Penshurst to Sir William Sidney, and over this is a tablet, the inscription on which states that Sir William's son and successor, Sir Henry Sidney, in 1585, caused the gatehouse to be erected to the memory of his father's patron.

Passing through the gatehouse we emerge into a small court surrounded by buildings on three sides. Immediately in front of us is the old Baronial Hall, perfect in its unrestored state; it was erected by Sir John Pulteney in 1341. The bold arches ranging above the windows from buttress to buttress greatly improve the exterior architectural effect, and at the same time add strength to the main walls. Entering through a fine vaulted porch and doorway, the jambs of which are ornamented with a chain of quatrefoils, we find ourselves under the minstrel gallery, erected by Sir Philip Sidney. The gallery is blackened by the smoke of ages, the central octagonal hearth, dating back to the days of Sir Henry Sidney, with its massive oak logs, carries one's imagination back to days when Yule Tide was kept up in good old fashion. In the roof immediately over this hearth there existed,

until about half a century ago, a louvre, through which the smoke escaped, a fashion continued in buildings of this kind long after the introduction of chimneys. The roof is a very fine example, open to the ridge, with boldly moulded ribs, purlins, and cornice. The principals are supported from just below the cornice by full-length grotesque figures, rudely carved, all of which, from some reason, have had their legs amputated. Beneath the Minstrel Gallery, in the west wall, are three arched doorways leading to the kitchen, buttery, and servants' hall, and at the south side of the screen is another porch, added by Sir Henry Sidney on Pulteney's big buttresses.

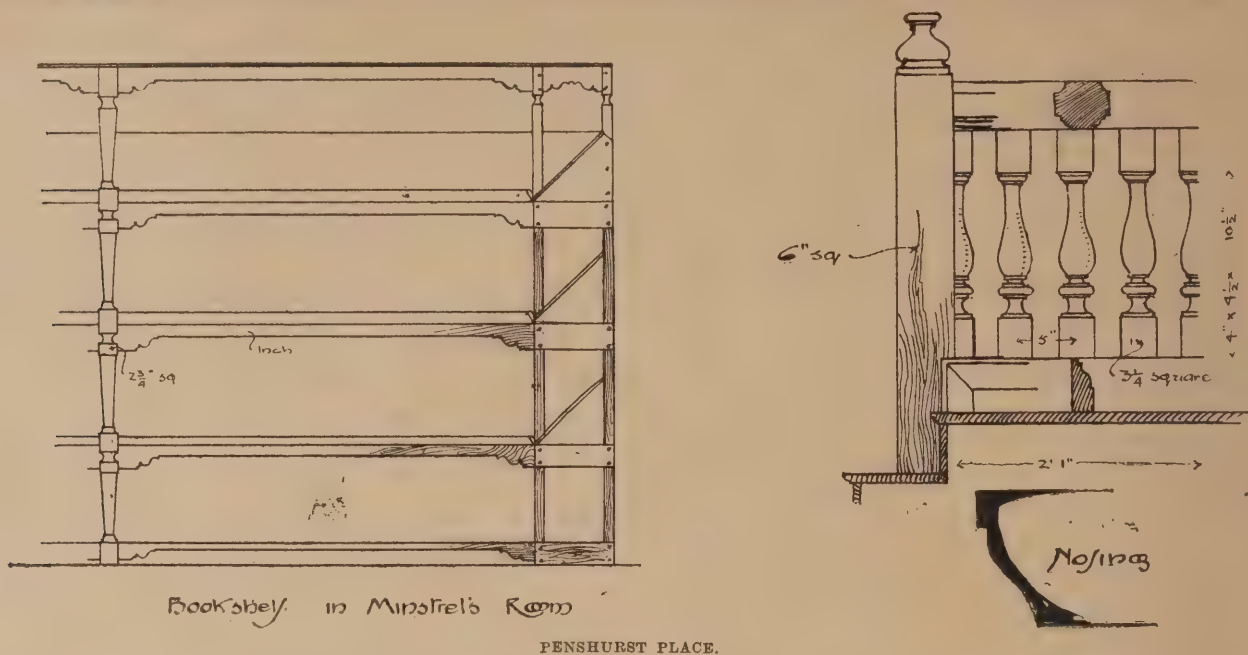
The Minstrel Gallery screen itself has had plaster tracery inserted into its panel heads, doubtless the work of last century; above, behind the gallery, is some fine panelling. Much of the wainscot in this portion of the house is of split oak, untouched by the plane. A door at the north of the gallery leads into a suite known as "Saccharissas Rooms," after the beautiful wife of the Earl of Sunderland, who made frequent use of these apartments in her many visits to Penshurst.

On the south side of the dias an octagonal stone staircase leads to the state dining room, and thence to Queen Elizabeth's room and the Buckingham building, all richly hung with tapestry, and containing many interesting family portraits. The furniture is especially fine, and is mostly of sixteenth and seventeenth century date. The fireplaces have quaint cast-iron backs with hunting and warlike scenes; from the state dining room a slit in the wall gave the lord a full view of the hall, and enabled him to regulate the merriment of his retainers below. There are interesting relics of Queen Elizabeth, including a worked table said to have been by the Queen herself, and a cabinet, formerly in the possession of Cardinal Wolsey; amongst other pictures is a quaint scene of Queen Elizabeth dancing with Robert Dudley, Earl of Leicester; and in a small page's closet adjoining is a rare and valuable collection of old china.

In the entrance corridor on the ground floor is a fine collection of old armour, containing several complete suits, together with some muskets of very early make. The remaining portion of the house is devoted chiefly to private apartments.

Possibly one of the greatest of Penshurst's many attractions are the delightful old Elizabethan gardens which stretch away with steps and terraces to the park beyond, with grass walks winding in and out among flower beds, yew hedges, and mysterious alleys, leading us to little bowers, where the sound of trickling water is heard, and presently a tiny silver stream peeps forth among the ferns, and entices us to rest in the cool shade by its side.

Through a private gateway we enter the churchyard, the grey old church tower rising above the dark green yew hedges, whilst beyond the lych gate, flanked by picturesque old cottages, forms a delightful subject for the artist's brush.



Bookshelves in Minstrel's Room

PENSURST PLACE.

ENGLISH CATHEDRALS.*

BY J. LANE.

AMONGST the evidences of the present century pointing to the development of art in its true beauty, nothing is more decided than the revival of the pointed style as exemplified by the multitude of new churches erected and the conscientious restoration of the cathedrals and churches in every part of the British Isles. With the castellated structure of similar periods there is a contrast, for, with the exception of here and there a stately castle (such as we have at Raby, for instance), age, storm, fire, tempest, and the exigencies of Civil War have removed the contemporary specimens; but, thanks to that feeling of veneration which a Christian nation has ever entertained for the temples of its religion, and not the less to the solidity of construction, so favourable

A CHARACTERISTIC OF ANCIENT BUILDINGS on solid foundations, the stately cathedrals of England have defied the ravages of time, wars, revolutions, and so-called restorations; and these mementoes of the nation's early piety still call nineteenth century architects to witness that abbot, prior, and monk of the pre-reformation days could design and erect edifices of surpassing grandeur and beauty, to provide models and specimens for our Gilbert Scotts, Streets, Burgesses, and modern designers of a class of work which was brought to perfection many centuries ago by such masters as Lanfranc, Ernulph, Anselm, Gundulph, William of Seno, Thoresley, Wykeham, and other early Churchmen whose works exist, whilst their names have almost been lost to posterity. We can still see

Massive arches broad and round,
That rose alternate row by row,
On ponderous columns short and low.
E'en on these walls the heathen Dane
Had poured his impious rage in vain.
Not but that portion of the pile,
Rebuilt in a later style,
Showed where the spoiler's hand had been.
Not but the wasting sea-breeze keen
Had worn the pillared carvings quaint,
And mouldered in each niche its saint.

From those evidences which still exist much may be gleaned of the ideas of the picturesque and beautiful breathed in the spirit of those early days. Who can deny but that there is much originality to be admired in the unique octagon of Ely, the spire of Salisbury, the nave of Winchester, the west window of York, the five aisles of Chichester, the west front of Wells, Peterborough's painted ceiling, Lincoln's angel choir, Exeter's minstrels' gallery. Situation of the edifice is, perhaps, the most important item in claiming for the picturesque

exterior. Many of our cathedrals lose much of the variety produced by the grouping of their fine outlines, by being built in the midst of large towns, on the low level of a surrounding plain (such as that of York); but, where the proportions are so fine that the building towers above the surrounding dwellings, the county reaps the benefit of a noble landmark. The Bell Harry tower of Canterbury, which I saw one autumn day from the Whitstable Road, with its golden fane illumined by the morning sun; Ely's beautiful lantern, visible o'er many a mile of dreary Cambridgeshire fen; York Minster, from Garrowby Hill; such landscapes as these testify to the cathedral as the centre-piece of a picturesque scene on which the eye loves to linger with delight. Lincoln, towering on its sovereign hill, has a prominence rivalled by no other cathedral, and is a landmark for thirty miles round, whilst the great Norman towers of Durham, the final resting place of St. Cuthbert,

Whose grand cathedral, huge and vast,
Looks down into the Wear,

possess in themselves unrivalled sites for adding to the enchantment of the surrounding scenes. Old Sarum stood on the top of a hill, but the storms made sad havoc with the previous cathedral, so that when in 1220 Bishop Poore had to face the task of its restoration, he chose another site on lower ground, now the city of Salisbury, so that, although greater protection was secured, much of the fine effect which its tall spire would have had on the landscape was otherwise lost. As pretty a view as I have ever witnessed was Lichfield Cathedral one February morning, its three spires reflected in the Bishop's Pool, with the frost covering the trees in the foreground. The three great arches of the west front of Peterborough present another picture of a bold exterior, whilst the elegant central tower of Gloucester is a graceful treatment of the square tower in the Perpendicular Period, which shows to great advantage compared with the more solid and massive Norman towers of the earlier cathedrals. The Gothic style has this disadvantage, that its interiors lack the colour decorations which add so much to the picturesque

INTERIORS OF THE CLASSIC STYLES.

This is not an unmixed evil, for the beauty of the carving is brought to the front, and the vaulted roofs and clustered columns afford outlines wanting in the St. Paul class of interior. Although in earlier days it was evident that mural paintings extensively adorned the walls of our earlier Gothic cathedrals, the examples which the occasional removal of whitewash affords us are apparently nothing better than frescoes in simple tints, and out of comparison with the mass of gilt colour usually to be found in the interiors of the classic design, colour being mainly left

to the stained glass window, of which we have so fair a specimen at York. The chief items of beauty I claim for the Gothic cathedrals are the fine vistas of clustered column. I often think it a pity, when showing visitors over cathedrals, that attention is not more often called to the magnificent perspectives which are afforded of clustered column and groined arch from various positions. Chichester with its five aisles is a splendid specimen of this grouping, and it at the same time affords a good example of the bold contrast of the pillars and pillars of black Purbeck marble backed up by the white Portland stone of the fabric, which is so picturesque a feature of the southern cathedrals whose builders had access to the quarries of the Isle of Purbeck.

On pillars lofty and light and small,
The keystone that locks each ribbed aisle,
Is a fleur-de-lis or a quatrefoil.
The corbels are carved grotesque and grim,
The pillars with clustered shafts so trim,
With base and capital flourish around,
And seem bundles of roses which garlands have bound.

THE foundation-stone of new Board schools at Douglas, Isle of Man, was laid a few days ago.

THE foundation-stone of the Jubilee extension of the General Hospital, Nottingham, will be laid to-morrow, July 7th.

THREE corner-stones of the new chancel about to be added to St. Bartholomew's Church, Marsden, Yorkshire, were laid recently.

THE foundation-stone of the new Church of St. Alban the Martyr, Westcliff, Southend, has been laid. The cost of the building will be about £2290.

THE foundation-stone of a new English church has just been laid at Dusseldorf. It will be a pretty Gothic structure, seating about 200 people.

AN appeal is being made for funds wherewith to reconstruct the present buildings of the Working Men's College, in Great Ormond Street. The estimated cost of the proposed work is about £15,000.

A new Salvation Army "citadel" is being erected on Battery Green, Lowestoft, by Mr. John Ashby. The new building is to include a senior hall and a junior hall, both on the ground floor; the building contract amounts to £1000.

THE handsome oak screen which has been erected in Windsor Parish Church as a memorial of the Queen's "Long and Happy Reign" was dedicated by the Bishop of Oxford a few days ago. Two shields on the screen bear the inscriptions, "V.R., 1837, and V.R.I., 1897." A dedicatory tablet will also be affixed. The screen was designed by Sir Arthur Blomfield, A.R.A., and has cost about £350.

*A paper read before the Northern Architectural Society.

THE VENUS OF MILO.

A RESTORATION RIDDLE.

M. REINACH made a most interesting communication respecting the statue known as the Venus of Milo, in the Louvre, at the annual meeting of the Hellenic Society held last week at 22 Albemarle Street. Professor Jebb, M.P., presided, and among those present were Sir John Evans, Mr. Penrose, Professor Percy Gardner, Mr. Ernest Gardner, the Provost of Oriel, and Mr. Blomfield Jackson. M. Reinach said he thought he had solved the riddle of the restoration of this Aphrodite. In 1892 M. Ravaisson published a photograph of a drawing of the statue as it was in 1819, the time of its discovery. On either side was a beardless Hermes with inscriptions. The first of these was the one that fixed the date at 260 B.C., but the other, which contained the name Theodoretas, was not as late as the middle of the fourth century. There was, therefore,

AN APHRODITE WITH TWO HERMES,

one having an inscription of 260 B.C., the other of 370 B.C., but there was no reason for dating the statue from one rather than the other, since neither of the inscriptions was on it. Now, in 1877 a number of statues were found together in Melos, which M. Tissot, then French Minister at Athens, tried, without success, to get for the Louvre. They included a colossal statue of Poseidon, some parts of female statues, and a statue bearing the name Theodoretas. The conclusion was that this remarkable statue of Poseidon of Melos belonged not to 50 B.C., but to 370 B.C. All those who had seen the two were struck by the resemblance that existed between this Poseidon and the Aphrodite of Melos in technique and in the folds of the draping, and some authorities had attributed them both to the same period. Having thus got to the opinion that the Aphrodite and the Poseidon were of the same period and technique, and had come from the

same workshop, he conceived the idea that they must be combined in some way, not as a group, but as a pair. Now, it had been suspected that there was something wrong in the designation of the Paris statue, and when the matter was considered, the name was seen to rest on little or no evidence. His theory, then, was that this Aphrodite was not an Aphrodite at all, but an Amphitrite. That would go very well with the idea that she was associated with Poseidon, and would help towards the proper restoration of the Paris statue. The great difficulty in restoring the Venus of Milo was that she seemed to be looking a long way away; and that her regards were directed upwards. For this reason restorers had not, so to say, known what to do with her eyes. But it had been observed that the statues of sea divinities often seemed to be looking as if they were examining the distant horizon, and this fact might be a clue in the case of the Venus of Milo.

THE STATUE OF POSEIDON.

had the right hand uplifted and holding the trident, while the left hand was approaching the body as if to take up the draperies. The Aphrodite might be taking up the draperies with the right hand and holding the trident in the left, and so the two might be imagined as responding to each other. The fragment of an arm holding an apple, exhibited with the Venus, he refused to take into account; it was not found at the same time as the statue, and its work was very poor. As a last consideration, he pointed out that Philochorus spoke of two big statues in Telos representing Poseidon and Amphitrite. At first, M. Reinach thought Telos might be a mistake for Melos, but further reflection convinced him this was not the case. The statement of Philochorus showed, however, that about 400 B.C. there were two statues of Poseidon and Amphitrite associated together in the adornment of a shrine, and it might be that about the same time a shrine of Poseidon in a neighbouring island—Melos—was adorned with two similar statues at the expense of a rich man named Theodoretas.

BUILDING BY-LAWS.

SOME AMENDMENTS AT LEEDS.

THE Leeds Corporation is seeking to amend and extend its powers in respect of building by-laws. The draft of the new by-laws has been under the consideration of the committee of the Leeds Incorporated Law Society, who have, through a sub-committee, carefully examined the scheme, and submitted to the Corporation authorities some important observations thereon. The first point which the committee have called attention to is that many of the by-laws are worded in a loose way, and that many words are used which have no definite legal meaning. It is contended that it is of the highest importance that the by-laws should be so expressed that there may be as little opening as possible for uncertainty as to the meaning of any particular by-law. Another point has been raised which is considered of equal, if not greater importance. According to the by-laws, if any issue arises between the Corporation and a property owner as to the question of whether the property owner has complied with the by-laws, the Corporation are to be

THE SOLE JUDGES.

There are two general questions of great importance, but there are many special points to which attention has been directed. It is contended that the powers given to the City Surveyor should be exercised either personally by himself or by some duly qualified deputy. Those who have had experience of the action of subordinate officials will, it is said, realise the importance of this point. There are by-laws having reference to public buildings which render it of the highest importance that it should be clearly defined what is a public building and what is not. To give an illustration of the uncertainty which would prevail if the by-laws were passed unaltered, it may be stated that a restaurant is a public building unless it be "merely a shop so used." Exception has also been taken by the Committee of



PENBURST CHURCH

the Law Society to the vagueness of the words "business premises" and "licensed premises." And, again, the words "domestic building" are used in a manner which leaves it uncertain as to what is a domestic building and what is not. Another most important matter is with regard to main streets. For a long time there have been many anomalies with regard to the

WIDTH OF STREETS IN LEEDS.

A minimum of 12yds. has been in operation with regard to newly laid-out streets, and it is the law that while two rows of cottages, if newly erected, must be separated from each other by a width of 12yds., the whole of the space must be flagged and paved as a street, although such street is not and can never be a thoroughfare. Many of the oldest thoroughfares in the town carrying an enormous amount of traffic are little more than half that width. The bottom of Woodhouse Lane is an illustration of this. Under the proposed by-laws streets will be divided into two classes, but it is pointed out that there is no proper definition of what is a main street; indeed, it is proposed to give the Corporation power at any time to declare any street to be a main street, and, when that has been done, certain provisions with regard to its width become applicable. In the laying out of new streets also it is proposed to require an absolutely straight line of frontage, which will, in many cases, mean—according to the view of the Law Society—an enormous waste of property, without any public advantage whatever. There is a by-law which may subject builders to very serious inconvenience. The builder is bound to submit his plans, and it is proposed to give the Corporation power, after the plans have been passed, to enable the surveyor to come in and stop the work by alleging that the plans are not in accordance with the by-laws. Power is proposed to be taken to prevent owners

ALTERING BUILDINGS WITHOUT SANCTION, but it is complained that there is no proper definition of what amount of alteration is necessary to confer this power. With regard to the gradients of proposed streets, the Corporation, it is alleged, seeks to be autocratic, for it takes power to require the easiest practicable gradient, which may throw upon the owner an absolutely prohibitive expense. There are some very important provisions with regard to the width of streets, and it is the legal view that in many cases it will be most injurious that there should not only be 14yds. space between two rows of houses, but that the whole of that space should be paved and flagged. If this power be given and enforced the result will, it is pointed out, be that the cost of building, and of course the rent, will be enormously and unnecessarily increased. Many other by-laws deserve careful consideration. As an illustration it may be stated that the 32nd by-law will prevent the erection of a carriage house, bicycle shed, or even a dog kennel within 15ft. from any building. Members of the legal profession commend these proposed by-laws to the careful consideration of all who are interested in the subject.

A HANDSOME pile of buildings, just completed, as the new offices for the Liverpool School Board, were opened last week.

THE West Ham Corporation has instructed Mr. A. Saxon Snell, F.R.I.B.A., to prepare plans for the erection of public swimming and private baths, and other buildings in Romford Road, Stratford, E.

A new parsonage is being built for the vicar of Radcliffe, and will cost over £2000. The erection of new day schools, which will require an expenditure of upwards of £4000, and repairs to the parish church are also being contemplated.

MEMORIAL stones in connection with the proposed new Baptist Chapel at Corris, Ireland, have just been laid. The building, which is being erected to the plans of Mr. J. Lewis Evans, architect, Aberystwith, will be of Gothic design, and is estimated to cost £400, with accommodation for about a hundred persons. The contract was let to Messrs. J. Humphreys and H. Davies, Machynlleth.

BOW, CHELSEA, AND DERBY PORCELAIN.*

BY WILLIAM BEMROSE.

A book upon such a subject as English Porcelain as manufactured in the five potteries of Chelsea, Bow, Longton Hall, Worcester and Derby, appeals to but a very small public. Amateurs of china will be interested, and to them such a work as this of Mr. Bemrose's should be extremely valuable; to manufacturers and to those who are interested in the history of Derbyshire and its manufactures also. The result of the researches of Mr. Nightingale (who is quoted by Mr. Bemrose) and of the author amongst advertisements in old newspapers, and hitherto in edited documents and deeds relating to these factories, appears to be to establish it as a fact that William Duesbury, who has hitherto had the credit of commencing the manufacture of such things at Derby in 1750, was anticipated by a man named Andrew Planché. The earliest advertisement in a London paper which refers to the sale of "Derby Porcelain" by auction (the usual mode of disposing of quantities of such things at that time to all appearance) appears in December, 1756, and it is impossible that these articles could have proceeded from Duesbury's factory, for he was working in London in 1751-53, facsimiles of pages of his work-book being given showing that at that time he was enamelling at small prices, pieces of porcelain made at Chelsea, Bow, Derby, and Staffordshire, and sold to the dealers in the white glazed state; and he appears to have been at Longton Hall in 1754 and 1755, where his father lived, while it was not till 1756 that he commenced the factory at Derby by turning seven houses into workshops, details about which are given by Mr. Bemrose, who also goes pretty fully into the question of the origin of these earlier examples of Derby porcelain. He comes to the conclusion that they must have come either from the Cockpit Hill pot works, or from the kilns of the aforesaid Planché, who made and fired small figures of animals about 1745, and subsequently made an agreement with Duesbury and Heath when the Derby factory was started in 1756.

A large part of the book is taken up with the textual reprints of old deeds, leases of various properties, agreements with workmen, catalogues, and lists of moulds and models belonging to Duesbury in 1795, the latter having been made by four old workmen in 1819 for the purposes of a Chancery suit. These last should prove very useful to collectors, as assisting in identifying specimens made before 1795. There is at the end of the book a chronology of the Chelsea, Bow, and Derby pot works, and of Duesbury's porcelain works at Derby, and diagrams of authenticated Bow, Chelsea, and Derby marks, which should also be of great use.

The notes about various workmen, the artists as we should say now, on whose labour the excellence of Duesbury's porcelain depended, are interesting, rescuing from oblivion the names of men of considerable talent in their special lines, as the excellent illustrations show:—J. J. Spengler, a Swiss, the best modeller employed at the factory (at a salary of £2 2s. a week!), Billingsley, Pegg, and Boreman, china-painters, and others. The artistic work is often misapplied as modern opinion would consider, but there can be no doubt that, apart from that misdirection, the work is very accomplished.

The book also contains all that is known about the Longton Hall porcelain works, together with many odds and ends of information relating to the making and selling of china in Derby, but it is not a book for the general reader.

S. S. G.

"Bow, Chelsea and Derby Porcelain." Being further information relating to those factories, obtained from original documents, not hitherto published. By William Bemrose. Bemrose and Sons, 23, Old Bailey; and Derby, 1898.

FOUR memorial stones of a new Wesleyan chapel at Monton, near Eccles, have been laid.

THE PRIORY OF INCHMAHOME.

BY C. E. WHITELAW.

THE island of Inchmahome is known as the "Isle of Rest" (although that is not the translation of the Celtic name "Inchmahome," as we shall see later on), and never was a title better bestowed; for here, during the Middle Ages, a little colony of monks lived a life of peace and plenty, out of reach of the ever flowing and ebbing tide of war, raving, and family feud that surged along the shores of the lake. For are we not on the line of demarcation between the Highlands and Lowland—the debatable land across which the marauding Highlander loved to stretch his claymore.

Taking a glance at the history of the Inchmahome Priory (Perthshire, N.B.), we find that Walter Comyn, fourth Earl of Menteith, in 1238 obtained the authority of Pope Gregory IX. to build a priory in the diocese of Dunblane, and on the Island of Inchmahome, for the religious men already settled there.

The Priory is dedicated to Mocholmoch, whose day on the calendar was June 6th, identifying him with Colman of Dromore, in Ireland, a Celtic saint of the sixth century who was called Mocholmoch. Skene, in a note in his "Celtic Scotland," says: "In Ireland it was the custom to prefix 'mo,' my, and add 'oc,' little, as terms of endearment, to the names of saints; when the name ended with 'an,' 'ok' was substituted for it. Thus we have the island mentioned in a document dated 1358 as 'Inchmah-cholmok,' 'the isle of my little Colman;' or Latinised as in another of about the same period, 'Insula Sancti Colmoci,' 'Isle of St. Colman.'"

The monks were of the Augustinian order. The church, as its Architecture shows, belongs to the First Pointed Period, and must have been commenced very shortly after its foundation in 1238, as the founder also endowed it. The plan shows an aisleless choir, 66ft. by 23ft. 8in. All the windows are of the lancet form, the eastern being of five lights.

There is a good sedilia and two ambries in the south wall, also the remains of what appears to have been a sacristy, with a lean-to roof against the north wall; from the base, &c., being carried round, it is evidently an original part of the design. (Comp. Dunblane.)

Here we have the graves of some of the most distinguished men of the families of Comyn, Stewart, Drummond, and Graham, with interesting monuments, unfortunately much defaced; amongst others that of Walter Stewart, Fifth Earl of Menteith, and his Countess. He was one of the most distinguished men of his day, fought at the battle of Largs in 1263, was a witness of the marriage of the Princess Margaret to Eric of Norway in 1281, and a distinguished crusader under Louis IX.

The nave has a north aisle, but no south aisle, and measures 75ft., and from 23ft. 8in. at east end to 27ft. 2in. at west end. This seems to be from the wall having been rebuilt. (Comp. irregularity in other walls.)

The details of the main arcade and the fine west portal are first pointed work of the best quality, and with the general arrangement of the plan, bear many points of resemblance to Dunblane Cathedral, which was being built at the same time (1233-1258).

There are remains of a tower at the north-west angle of the nave, but of later date, although there was evidently the intention to have one here from the first.

On the south side of the choir is the chapter house, an oblong, 24ft. by 15ft. (internally), with semi-circular vaulted roof and a chamber over, approached by an outside stair.

The cloister and cloister garth were on the south of the nave, but the buildings surrounding it have to a great extent disappeared, leaving the kitchen offices on the south-east side the best preserved portion, still retaining windows, fireplace, and drain. The kitchen is covered with a plain tunnel vault, and there was a story over.

The refectory probably ran along the south side of the cloister, and from the dormitory

over it ran a stair giving access to the kitchen for use during the day.

The Priory of Inchmahome, like the other ecclesiastical foundations in Scotland, was secularised at the Reformation, and in this case absorbed into the barony of Cardross. We have, therefore, as is unfortunately the rule with the people in Scotland, to deplore the destruction of the conventual buildings, and although one would not suspect it in this out-of-the-way place, the cause was the same old enemy—the realization of a convenient quarry for dressed stones.

We have only to look at the neighbouring island of Talla with its seventeenth century castle to see where the greater part went (see kitchen window), also at the curious avenue-like walled enclosure. The chapter-house seems to have been appropriated as a mausoleum by the Earls of Menteith and Airth, and this enclosure is said to have been built in haste to receive the remains of the first Earl of Menteith and Airth, who was assassinated in the camp of Montrose at Collace in 1644 by Stewart of Ardvorlich.

I cannot conclude without mentioning two illustrious sojourners—King Robert the Bruce, who visited Inchmahome on several occasions both as a wanderer and as a King, and Queen Mary, who, when a child of five was brought here by her mother soon after the battle of Pinkie in 1547, and resided here from September till the following February, when she left for Dumbarton en route for France.

The Duchess of Devonshire will lay the foundation-stone of the William Terriss Memorial Lifeboat House, at Eastbourne, on the afternoon of Saturday, July 16th.

COLDBATH PRISON, which is now being pulled down, was the scene of a serious accident, by which several men were severely injured. They were working on the top floor breaking down the structure, when the concrete flooring gave way, carrying the lower floors with it. Two of the men fell a distance of over 50ft.

THE ARCHITECTURE OF NEWCASTLE.*

A RETROSPECT.

BY FRANK W. RICH.

IT may be interesting to glance hurriedly with an architectural eye over the past famous sixty years, and see how Newcastle-upon-Tyne comes through the ordeal. In the year of Her Majesty's accession, Newcastle would wear an entirely different aspect to Newcastle of the present day. The boundaries of the town at that time might roughly be taken to extend on the west to the west end of Thornton Street; on the north, to Leazes Terrace; on the east, to Ellison Place; and on the south, to the Tyne. The growth of the city is not due to Architecture, but to the great commercial spirit that is now upon us. Newcastle, a little previous to the time we start (1837), was but a moderate sort of place, sleepy in a way, something like the keels that used to glide down the Tyne at high tide with their heaped-up cargoes of coals as compared with the present craft. There was the Castle, the older churches—All Saints and St. Thomas, the Assembly Rooms. And a quaint old place it must have been, and crammed full of history. But at this anterior period to the great epoch under review there was born a man who was destined to work a

TRANSFORMATION OF THE OLD PLACE.

one of those men of indomitable will, one of those great captains of industry for which Newcastle is so justly celebrated—I allude to Richard Grainger, sometimes called "the architect of modern Newcastle," a position to which I don't think he ever aspired, but who had the good sense to call to his aid the architects of his native town, and to imbue

* The inaugural address of the Session 1897-8, delivered by the President of the Northern Architectural Association, and just issued in printed form.

them with the enthusiasm of which he possessed so large a store. He must have been a bold man, and a shrewd one. His plans were most ambitious and gigantic, and his architects responded to the call, as, indeed, all men of art have done at all times, when not beset with hampering circumstances. Grainger was well on with some of his schemes at the time of Her Majesty's accession, and the making of the great railways may be said to be synchronise with this. After these preliminary remarks, we may now look at some of the Architecture of modern Newcastle, of that coming within the famous sixty years, and see what account our friends living or dead can give of themselves. As a means of better realising what I am about to say, we may imagine ourselves arriving by train at our Central Station. Here, we are at once confronted by a famous building, the work of our first president, a building designed in the very beginning of the railway system, when no one could foretell its gigantic growth, yet to-day this building is as useful as the day it was built, when other stations in Britain have become obsolete, and swept away to

GIVE PLACE TO MODERN STRUCTURES.

Coming out into Neville Street we obtain a fine view of the station, a building, from the clock tower to the west end, full of dignity. It is a matter of regret to us all that the original majestic design for the portico (which now hangs in the vestibule of the Museum of Natural History) was not carried out instead of the existing portico, and an equal matter of regret that the eastern extension of the station should not have been carried out on the lines of the original design, instead of the sort of coal depot roof lately erected. For these matters the directors must be blamed, and ought to be heartily ashamed of themselves. I make these remarks because I believe it echoes the view of all architects, and also in defence of the able man who designed the original building. The view from this spot as a "townscape" is somewhat unique. In looking to the east, we bring in the view Collingwood Street and Mosley Street, up to the Arcade, and in which the famous tower and spire of the cathedral group well. Looking in a more northerly direction, a similar view is obtained of Grainger Street, with the domes of the Exchange, and equally admirable monument to Earl Gray, closing the vista. We may now walk down Neville Street, and in doing so one cannot forget the change that has been effected in so short a time. One can remember Neville Street so well before Grainger Street was cut through, when all the buildings round about were

OLD TIME BUILDINGS,

and now nearly every one of them are new. The street, as we all know, is a very spacious one, broadening out very considerably at the Monument to George Stephenson, and with the modern buildings, now erected here, forms as fine an entrance to a city as will be difficult to beat. The entrance into London from King's Cross is shabby compared to it, as is the case in many of our principal cities. The buildings from the Douglas Hotel to the offices of the Standard Insurance Company are all modern business premises, save one, and on the other side of the street is the very large hotel lately erected by the North-Eastern Railway Company. The Union Club faces us as we proceed, forming a fine group with the offices of the Newcastle Chronicle, Messrs. Emleys, and the offices of the Union Insurance Company. The mention of the offices of the Chronicle remind me of my younger office days about thirty years ago, when this building was designed by my old master—Mr. Parnell, a member of our Association. Before that time it was the town house of Dixon Dixon, of Unthank. To the south, where once stood the picturesque old Westmorland House, we have the offices of the Coal Trade, a very fine design by our ex-president. We now enter Collingwood Street, which, when I knew it first, was entirely residential. It is now something like the City of London, bereft of residents. The building that arrests our attention is the very fine Bank, lately erected by Messrs. Hodgkin and Co. It is a stately and thoroughly gentle-



INCHMAHOME PRIORY: WEST DOORWAY.

manly building, and reflects the greatest credit on a lamented colleague (Mr. Robert Johnson), and the liberal-minded directors who allowed him "rope." A very fine block opposite—the offices of the Northern Assurance Company—is by the same artist. I must not forget a small building to the east of the bank, which was designed by Mr. Parnell, and was the first break into the residential quality of this street, and for many years stood high above the rest of the buildings. We now come to St. Nicholas Square. On the one hand, we have the Town Hall buildings, stretching from the square up into the Bigg Market, occupying the site of some very quaint old houses, which I remember very well, and on the other, the street called the High Level Approach, a very extensive range, the High Level buildings (the work of Mr. Parnell), and opposite, a picturesque block of offices by a past president (Mr. John Johnstone). Coming into Mosley Street, and proceeding half way, we come to a famous corner, one that would be difficult to equal in any provincial city. At this particular spot, the meeting of Mosley Street, Dean Street, and Grey Street, there is food for contemplation, as each corner presents something worth seeing. At one, the National and Provincial Bank, by the late John Gibson; another, the new building of the Prudential Assurance Company, by Mr. Waterhouse; and at the corners of Grey Street we have the start of what we call the Grainger buildings. At the head of Mosley Street stands the Arcade, one of

GRAINGER'S AMBITIOUS PROJECTS,

and a stately termination to the street. Passing down Dean Street, and under the very fine arch which carries the North-Eastern Railway—a credit to engineers—one wonders why they did not carry the railway on one of the terrible utilitarian structures they delight in, floating like a spider's web, and proportionately ephemeral; but this is a good, honest arch. Passing under this, one sees on all sides new buildings by colleagues yet amongst us, and many by others gone to their long home. At the angle of the Sandhill stand the very fine offices of the Royal Insurance Company, designed by Parnell, and further on the huge commercial buildings of Lombard Street, Queen Street, King Street, the Sandhill, etc. While we are at the river-side, we might from the Quay look for a moment at the High Level Bridge, one of the most architectural engineering bridges in the country. Its design may be obsolete, but it far and away excels the terrible wrought-iron bridge a few hundred yards further west, which may be said to be entirely devoid of the faintest æsthetic design, and is an insult to our time. Coming back to the foot of Grey Street, we now undertake by far the greater portion of our task, for we now start with

THE NOBLE BUILDINGS OF GRAINGER

and his architects. We must content ourselves with a very cursory glance. Taken altogether, they form one of the most extraordinary instances of town building ever conceived and carried out by one man. Within a year or two, they all practically fall within our period. The buildings in Grey Street, Shakespeare Street, Market Street, Hood Street, Grainger Street, Nelson Street, Nun Street, and Clayton Street yield a quantity and quality that should satisfy the most exacting. As I said before, Grainger had the good sense to be guided by experienced architects; hence we have the buildings well designed, which means that detail and grouping are useful. There are, especially in Grey Street, buildings of the finest Renaissance design where students will find a wealth of material, and it must not be forgotten all these buildings are of a genuine stone, not stuccoed and painted, and when newly built, clean as they came from the hands of the mason, and seen in a brilliant sunshine, they would, indeed, resemble a veritable palace of Architecture—a re-building of Rome. To describe them all is out of the question, but we may just glance again at Grey Street, and the best view is to be obtained at the junction with Mosley Street. Here the full and graceful proportions of the whole is taken in, but not quite at one view—

a circumstance which adds to the charm, for Grey Street not only ascends with a gentle gradient, but bends proudly away to the right with a noble sweep, passing on the way, the Bank of England, the Theatre Royal, the group of the Exchange, with its finely designed domes, Lambtons' Bank, and terminating with the monumental column in memory of Earl Grey. They are familiar to us, but possibly, like the prophet in his own country, not sufficiently appreciated. So subtle is the design of this street that, while rising and curving, no harsh or abrupt treatment can be observed, each building though separately designed falls into one harmonious group. We may now leave this mass of modern buildings, and may safely say they stand a lasting monument to the genius of Richard Grainger and his architects, Dobson, Green, Wardle, and Walker. Grainger Street West has not yet been mentioned. It is a comparatively new street, built since Grainger's days, and entirely by individual owners, the buildings being designed in every case by local architects, the result being a great diversity of design from the tail end of the Gothic revival down to date. I might also mention the new offices of the Water Company and of the Gas Company. My list, I am afraid, is but half complete, but I think I have enumerated enough to show the

ENORMOUS MASS OF COMMERCIAL BUILDINGS

that have been erected here in this period, from the designs of our colleagues. I will now run over a few of the buildings that cannot be said to be commercial—the College of Medicine, by our friends Messrs. Dunn and Hanson; the College of Science, by the late R. J. Johnson, with whom I had the pleasure of being associated; the Museum of Natural History, St. Stephen's Church, St. Aidan's, St. Michael's, St. Matthew's, St. Peter's, St. Mary's (Rye Hill), St. Dominic's, St. James's, the Roman Catholic Cathedral by Pugin, with the tower and spire so ably added by our ex-president. This short list, taken at random, could be multiplied many times. I have not even said a word about the works and factories that abound with us, and in which Architecture is often called to aid, and possibly this address would be incomplete were I not to mention that enormous hive of industry—the Elswick Works, where I have had the honour and privilege of carrying out some of the finest shops in the world. I have been in many of the chief cities of England and Scotland, from time to time, and looked about me, and often with a view of finding anything better in this respect than we have in Newcastle, but have been unable to find any. Newcastle will hold its own either in Architecture, or in its administration of cleanliness. In speaking of the continued commercial prosperity, one often notices how in a busy practice commercial men often

MOULD THE WAYS OF ARCHITECTURE.

The imperative demands of trade are often antagonistic to the precedents in Architecture. For instance—take a familiar case—the shop windows of our city, or any city, show the busy man will insist on having his window in one square of glass, or, because he cannot get any glass large enough, he will divide them by gossamer bars. I am quite sure his goods would be as well seen if shrined in architectural encasements. It would seem also, in walking through our streets, that the Architecture will presently be "behind the scenes"—in other words, it will be covered by huge letters of the alphabet. What is the cause of this trumpeting from the house fronts? Have we all become short-sighted, that we cannot see to read a man's name in moderate letters? I once lost a good client for declining (politely, I hope) to carry out some letters of this nature, over 9ft. high. It has often been said that an architect without the men of the building trades would be like a commander-in-chief without soldiers. The men of the building trade are our soldiers, and the excellence of their workmanship is of vital importance to us; and we cannot help but notice the nearly total extinction of some trades.

A DECAYED IPSWICH CHURCH.

A PLEA FOR RESTORATION.

AN appeal is being made for funds to restore an old and decrepid church at Ipswich—"one of the finest and most interesting churches in the county town of Suffolk"—to quote the architect's description. The edifice is that of St. Mary Key. It is an excellent example of fifteenth century work. The nave—to continue the description of Mr. E. F. Bisshopp, the Diocesan Surveyor—is spanned by a massive and splendid double hammer beam roof, the timbers of which are richly moulded, and the hammer beams, cornice, &c., were originally ornamented with angels and the strawberry leaf ornament. The faces of the wall pieces are carved as figures, and the whole is a specimen of mediæval workmanship of the greatest possible interest, and as a work of a past age of priceless value to the town. The former roof to the chancel was no doubt in harmony with that of the nave, but it has been unfortunately destroyed and replaced by a heavy erection fixed so low as to completely

SPOIL THE PROPORTIONS

of the church. There is a fine clerestory, richly panelled in freestone and flint on the exterior. The tower, which is 19ft. square and 73ft. high, has a very striking appearance, and once commanded the attention of visitors from the River Orwell, but it is now overshadowed by lofty mills, which completely hide this noble structure from this point of view. The roof is constructed of chestnut, and is in a most serious and dangerous condition. The ends of the lower hammer beams have rotted away, and have but little bearing upon the walls, and the feet of the principals, which rest on the hammer beams, are in a like condition. Of the wall plates but little remains, and the top of the walls is a mere mass of decayed wood and rubbish. The timbers generally are rent and split, and the pins in the tenons are snapped. Parts of the roof are in danger of falling at any time. To properly repair the roof it is absolutely necessary that it should come off and be re-framed and spliced. The clerestory on the north side is in a terrible state; the exterior face of the masonry to the windows and panelling to the walls has entirely perished, and the tracery has been made good with mortar, cement, &c., so as to hold in the glass. The parapet is also in a loose condition. The sanitary state of the church is distinctly bad. Owing to the low level of the floor, it has been flooded by high tides and storms on numerous occasions; dry rot has been set up, and a deposit of sewage and other matter has accumulated below the floors, and a sickly and disagreeable odour pervades the building. To remedy this state of things it is proposed

TO RAISE THE FLOOR

14in., covering the whole with concrete, and to pave the aisles. This can be done without spoiling the proportions of the sacred edifice. The south porch has been much mutilated; the side windows have been blocked, parts of the roof removed, unsightly exterior doors have been erected. It is proposed to restore this structure, and to use it as the entrance to the church. The east window of the organ chamber is in a dilapidated state, whilst the south window has been blocked up and cemented over in an unsightly manner; stone has been replaced by white brick, buttresses patched up in brick and cement, parapets badly rebuilt, and other work of the kind, whereby this side of the beautiful church has been greatly marred. Finally, it is proposed to clear away the bad patchwork of modern times, and to replace it with work of the original design, and thus to bring back this ancient church as far as possible to its ancient beauty and stability.

FOUNDATION-STONES have been laid of a Wesleyan school-chapel at Wood Street, Holly-wood Park, Stockport, to take the place of a mission at Queen Street West. There will be accommodation for 280 children, at a cost of £1900, inclusive of the land.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

July 6th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE artistic poster is threatened with a serious danger in the shape of the new decorative hoarding, from which advertisements are excluded. Several hoardings of this kind have been seen lately in Regent Street and other thoroughfares, but a much larger and finer example has just been erected in Oxford Street. This hoarding, which surrounds the site of some new buildings, is of immense size, and is ornamented with a bold and striking design in white, yellow, and sage-green. A border of stencilled garlands, alternated with classic masks, runs round the hoarding, and adds considerably to its effect.

SOME excavations at Hampton Court Palace have brought to light the forgotten water-gate and gallery, built by Henry VIII., through which the State barges passed from the Thames into the palace. The walls or piers are of immense thickness, being no less than 25ft. wide, and on these massive foundations—which were built in the river—formerly stood a large picturesque building of several stories, which was known as the water-gate. In this place Princess Elizabeth was kept as a prisoner of State by her sister, Queen Mary, and there subsequently resided the consort of William of Orange while the new State apartments were being erected. After the death of his Queen, William III. had the building demolished, as it obstructed the view of the river from his windows.

A MOVEMENT is on foot for establishing a central museum for the reception of London antiquities. Such an institution, however, is already in existence at Guildhall, and it is questionable whether there is need of another building. The Guildhall museum is rich in relics of old London; and, that being so, has a right to claim prior attention when a permanent home is desired for their antiquities by those who take an interest in the past history of our great Metropolis.

AN ancient Roman hospital has been brought to light at Baden, near Zurich, the discovery having been made in connection with recent excavations at Windisch, the Roman Vin-donissa. At Vindonissa the two great Roman roads met, the one leading from the Great St. Bernard along Lake Lemano and then by Aventicum and Vindonissa to the Roman stations on the Rhine; the other leading from Italy to Lake Constance by the Rhaetian Alps, the canton which is now Winterthur, Baden, and Windisch. The last point was the station of the seventh and eighth legions, and close by the Roman road the hospital has been discovered. It contains fourteen rooms supplied with many kinds of medical, pharmaceutical,

and surgical apparatus, the latter including probes, tubes, pincers, cauterising instruments, and even a collection of safety pins used in bandaging wounds. There are also medicine spoons in bone, and silver measuring vessels, jars, and pots for ointment, some still containing traces of the ointment used. The excavations have also revealed a large number of silver and copper coins, the former belonging to the reigns of Vespasian and Hadrian, and the latter bearing the effigies of Claudius, Nero, and Domitian.

THE Camberwell School of Arts and Crafts—founded as a fitting memorial of Lord Leighton—has just been re-opened, and an interesting collection of works by Early English masters hung on the walls of the well-lit and spacious gallery formed the chief attraction of the function. These were lent by Mr. J. W. Bacon, and include examples of those painters who made English landscape famous in the middle of the seventeenth century, and were the real inspirers of the romantic movement in France. Constable is, of course, the most noted, but the series, admirably arranged and hung by Mr. Cecil Burnes, who is the curator of the schools, appropriately starts with a beautiful composition by Richard Wilson. The great English master is seen here as a sort of connecting link between the artificiality of Claude and the search after truth which lay at the base of all Turner's most poetic and finely fancied visions. The quiet classic feeling in this Italian landscape, its composition formal, but in no way conventional, and its exquisite colour mellowed by time, make it one of the gems of the collection. Turner himself is seen in an early work, Crichton Castle, the castle itself set four-square on its plateau of hill, amidst the surrounding hills, a solemn and impressive landscape, with its dignified composition and fine opposition of light and shade. This is a finished work of the painter's early period. Muller's love of decided colour and sudden contrast, his almost dramatic effectiveness, his admirable lightness of hand, are all seen in the wonderful little sketch, "The Good Samaritan."

THERE are some delightful examples of David Cox. How delicate is his colour, how nervous his method of expression. Take the little canvas "Morning;" it is so brilliant, so full of light, the colour so pure, the reference to Nature so direct. Near it is a Bonington, a tossing sea under a stormy sky, an effect the young artist has painted again and again. The collection is very rich in Constables, and in Constable at his most interesting stage—the study and the sketch. We must remember this gallery is attached to an Art school to realise the peculiar value of the collection which Mr. Baker has lent for exhibition. Here is a small version of the "Cornfield," which, with its added flock of sheep and drinking boy, is so well known in the National Gallery, and, more interesting still, here is the sketch for the famous Salisbury Cathedral, now at South Kensington. There is a freshness and fancy about a sketch, a sense of inspiration which often eludes the painter when he sets himself to elaborate in first idea. We can see this in these little canvasses of Constable, as in his "Dedham," we can see how the painter can suggest space and distance, and show us the sketch of landscape wrapped in air. A little De Wint—another sketch, small in scale, but large in effect—shows us the great master in water-colour working in the stronger vehicle.

COMING to the figure painters, there is interest again in the variety of the show. Here is an Ety, a traitor flung from the Tarpeian Rock, and seen falling head foremost down the precipice, painted with the glowing colours of a Venetian master, and with a modelling of flesh which the Venetians never attempted. Two other Ettys—nude studies—have his luminous colour, and escape his occasional vulgarity. Most interesting is an early Leighton, "Cimabue and Giotto," very accomplished in its grouping and very German in colour. Millais is represented by his portrait of that sturdy sportsman, Sir John Astley;

and by the pathetic "Stitch, Stitch, Stitch," in its grey scheme of colour, with its silvery quality, the very hands seem to move, and by a child's head, as pure and vivid in colour as a Van Eyck. There is a portrait of Tennyson, by Mr. Herkomer, wrapped in his black cloak, looking very severe, with lack lustre eyes and peaky brow, the look of power, which Millais found in his sitter, quite absent. Mr. Herkomer is more successful, is absolutely successful, in his likeness of Mr. Ruskin, where he gives all the refinement of that delicately-featured face, modelling nose and mouth with infinite care, and choosing a colour scheme, cool greys and blues, most fitting and most feelingly rendered. Here our notice must end, but visitors will pause before the beautiful Rossettis, before Henry Moore's flowing seascape, Tintoretto's glowing portrait, and a fine series of Dutch masters.

THE work of Mr. Mortimer Menpes is full of pleasant surprises. He always likes to go out of the beaten track, and he ever has some novelty in the way of subject, technique, or even framing. In these days when everybody copies everybody else, and when even a good idea or an original notion becomes tiresome from the fact of its being everlastingly imitated and very much spoilt in the imitation, it is refreshing to find an artist who is continually taking a new departure. Mr. Menpes' latest achievement is the production of etchings in colour, and a very remarkable series of these works is now on view at the Dowdeswell Galleries in New Bond Street. There are but five-and-twenty etchings on view, but every one of them is worth the most careful study, as a fine example of the artist's success in an altogether new Art. In these days, when the coloured prints of the beginning of this century are being so much sought after, and are realising such extravagant prices in the sale room, colour-etching should undoubtedly receive its due share of patronage.

THE colour-etching would seem to have considerable advantage over the old-fashioned print by reason of its superior richness in tone and brilliancy of colour. Many of the works on exhibition have all the power and mellowness of an Old Master. Especially may be mentioned "Achilles," after Rembrandt; "Mrs. Currie," from the picture by Romney, the wondrous rendering of Piero della Francesca's "La Contessa Palma," and the marvellous study of the head of a wrinkled old dame entitled "Marie Jeanne of Finistère." On the other hand the rendering of the delicacy of landscape and the refinement of atmospheric effect would appear to be equally within the power of the artist in his new method. This may be easily proved by the study of such examples as "The Harbour, Boulogne," "Santa Maria della Salute," and the subtle contrast of hot and cold colour in "Cashmere." No explanation is given as to the new method, but as the whole of the plates have been etched or dry-pointed by Mr. Menpes, and have been printed by him at his own press, one may conclude that the most satisfactory result is brought about by a close union of Art and craft, that the Art is craftslike and the craft artistic—that the skill of the artist is admirably recorded by the most accurate knowledge of the capabilities of his method, coupled with a masterly technique. Whether Mr. Menpes used one plate or many, or what may be the mystery of his treatment of plates or his method of printing, we care not. All we can say is that the result of his labour, as we see it on the walls of the gallery, is surprisingly beautiful and effective.

THE remnants of an old camp, which dates back at the least for eighteen centuries, may yet for a short time be seen, writes a correspondent, within a few miles of the City of London. These earthworks are at Uphall, in Essex, on the east bank of the river Roding, about midway between Ilford and Barking. Until the present year the whole area, over forty-eight acres, had been in farming occupation for many centuries, but now the grip of the speculative builder is laid upon the site. Already the larger portion of the estate has

been sold. To all who value such relics of the past it will be a matter of regret to know that the levelling of these earthworks will soon be effected, and that all traces of the ancient camp will entirely disappear. A few months ago some attempts towards its preservation as an open space or as a public garden were made, but the enormously increased value of the land precluded any lingering chance of rescue from destruction. Notices of this camp, meagre enough, are given by various Essex historians and other writers from Camden downwards; but the most important is that quoted from a MS. history of Barking, compiled about the year 1750 by Smart Lethieullier, a famous antiquary, who resided at the manor of Aldersbrook, in Little Ilford.

MR. LETHIEULLIER thought that the intrenchment was too large for a camp; in his opinion it was the site of a Roman town, although no traces of buildings had been found on the spot. This he accounted for on the supposition that the materials were used for building Barking Abbey, and for repairing it after it was burnt by the Danes. In support of this opinion, he related that, upon viewing the ruins of the Abbey Church in 1750, he found the foundations of one of the great pillars composed in part of Roman bricks, and that a coin of Magnentius was found also among the ruins. From its general form and position, and by comparison with other early earthworks, we may, however, well conjecture that this camp was of prehistoric origin, and in all probability a British settlement subsequently occupied by the Romans, who commonly adopted such well-chosen sites for their own camps. An opinion has also been expressed that it owes its origin to the Norman Conqueror, who made the adjacent Abbey of Barking his residence until the Saxons had quieted down and the Tower of London had been built or rebuilt; but that is most improbable, although he may have pitched the camp of his army upon this ground during that period of unrest. Apart from these early remains, a further interest attaches to the farm at Uphall. While excavations for brick-earth were being carried on some thirty years ago the fossil bones of many animals of prehistoric age were exhumed, amongst them those of rhinoceros, hippopotamus, lion, bear, and, notable above all, the huge hairy mammoth, with the only complete skull and tusks which have ever been discovered in Great Britain. This was carefully preserved under the direction of Sir Antonio Brady, and may now be seen in the Natural History Museum at South Kensington.

THE doors of the "Old White Horse" in Fetter Lane have at last been finally closed, and one of the very few old coaching inns left in London will soon have disappeared beneath the pick and shovel. At the dawn of the railway era no fewer than sixteen mail coaches left and arrived at the "White Horse" daily, without mentioning stage wagons and post carriages. The long row of stables, surmounted by rambling corridors of bedrooms, reach right back to Fumival Street on the west. The old inn is also intimately associated with the modern Rowton Houses which are springing up all over London, for Lord Rowton's maternal uncle, the late Earl of Shaftesbury, once conducted the house as a model dwelling for working men. The site occupied by the house and stable-yard is a very large and valuable one, the whole being undermined by vaults of even greater antiquity than the most ancient portions of the old buildings.

"It has for many years been felt in Switzerland," writes a correspondent to the Times, "that it was unworthy of the country to allow the national antiquities and relics of its past history to drift away into foreign museums and collections, and the idea of a national museum has been gradually taking shape. Little knowledge of human nature was necessary to see at the outset that the citizens of Basle, Berne, Lucerne, and Zurich would each think that the national museum would most fittingly be placed under their charge. A solution of the dilemma was at first sought in

the arbitrament of independent experts—the late Sir Wollaston Franks of the British Museum, M. Dareel of the Musée Cluny, and Dr. Essenwein of the Nuremberg Museum. These men decided in 1890 in favour of Berne, but this verdict, though temporarily accepted, was afterwards overruled in favour of Zurich, where the Swiss Chambers finally decided that the Landes Museum should be placed. Those who are fortunate enough to see the result will have every reason to approve their judgment. The citizens have not spared their money in providing a fitting home for the national relics, nor has the Government, on its side, been at all niggardly in providing funds for buying back such of these as had drifted into foreign collections, while many Swiss corporations or individuals have with great liberality given or deposited their possessions in the museum.

"FROM the fifteenth century onwards the arrangement of the museum is strictly chronological. It contains, for instance, a series of rooms of the various periods, each furnished with appropriate contemporary objects. Many series of objects, however, are not capable of being subjected to the chronological arrangement, and in other rooms are collections of antiquities from the earliest times of the Stone Age in Switzerland up to the Costumes of the Cantons in the present century. These rooms are to some extent of the same character as those with which one is familiar in other museums, but it will generally be found that the doorway, the panelling of the walls, or the ceiling, is in itself worthy of examination. The room in which the majolica plates made at Winterthur are exhibited is an example of this, since the background for the dishes is formed of the sides of an old panelled room from Berne. The combination of the ordinary museum methods of arrangement with the reproduction of historical interiors lends a charm and variety to the collection which greatly lessen fatigue. To pass from the sombre tints of the low wood-panelled rooms of the seventeenth and earlier centuries to the 'Rococo zimmer,' with its bright decoration and cases full of porcelain, gives a sense of relief to the eye, and the visitor is refreshed rather than wearied by each new thing that he sees. The town architect, M. Gull, has planned a building which, while perfectly satisfactory in its internal arrangement, as was seen on the occasion of the opening ceremony some ten days ago, is at the same time a handsome addition to the architectural ornaments of modern Zurich."

AN exhibition of students' work in the various crafts embraced by the Central School of Arts and Crafts (established by the Technical Education Board of the London County Council at 316, Regent Street) is being held this week. Specimens will be shown of bookbinding, silversmiths', goldsmiths', and jewellers' work, chasing and engraving, enamelling, stained glass, leadwork, stonework, woodcuts in colour (by a method based on Japanese practice), also modelling and designs for various processes. The School, which is just completing its second year, has been very successful in the object for which it was established, viz.:—To provide for apprentices, journeymen, and others engaged in the more artistic trades, such individual training in design and manipulation as each student may require in relation to his own particular craft. Admission to the School is, within certain limits, only extended to those actually engaged in these trades, and it is outside its scope to provide for the amateur student of drawing and painting. It is gratifying to note that the resources of the building have often been severely taxed during the past session, over 500 students having been registered; many of those have derived the greatest benefit from the opportunities afforded for supplementing their daily practice in the workshop, where, owing to the subdivision of processes of production, they have little opportunity of gaining a broad view of their craft as a whole. New classes are contemplated for next session, commencing September 19th, in writing and illumination, wood-carving and

gilding, and tapestry and other weaving. Full information as to these or other classes can be had from the Curator at the School.

THE stairs at the Royal Courts of Justice are inflicting an intolerable strain on the physical powers of those who have frequently to use them. The managing clerks of solicitors, being conspicuous sufferers, have drawn up a pathetic petition to the House of Commons, and entrusted it to the sympathetic hands of Sir Edward Clarke. It is the journey to the offices on the upper floors that tries the clerks. From the offices on the ground floors to those of the Masters and Registrars up aloft the steps have been counted. They vary in number according to the point of entrance, but, on an average, they may be reckoned at 110. To go up and down 110 steps continually is really too much like turning the Royal Courts of Justice into a treadmill. The petitioners therefore pray for the erection of passenger lifts at various convenient places in the building.

A CORRESPONDENT writes to say that it is a mistake to suppose that Fleet Street and the Strand cannot be widened, although he admits that no insignificant increase of width will meet the growing evil of congested traffic. Both in Fleet Street and the Strand, by arrangement between the County Council and the local authority, important corner blocks have been set back on rebuilding within the last year. In the case of Fleet Street, the County Council and the City Corporation pay in equal moieties for the cost of the improvement. In the Strand, the District Board of Works carries out the work and effects the purchase, but the payment is made out of the county rates, or, rather, a loan incurred thereon, by the L.C.C. The intention is to continue the process of partial widening, as opportunity occurs, step by step; but it must necessarily be slow and inadequate. So far as it goes, however, it makes for comfort.

In the beautiful Collegiate Church of St. Saviour, Southwark, the Duke of Connaught has just unveiled a stained-glass window, which has been placed in the north transept, to the memory of the Prince Consort, and which forms a notable addition to the many interesting memorials that adorn the edifice. The window is the Jubilee gift of Mr. F. Lincoln Bevan, and the subjects represented in the four panels are Gregory the Great, Ethelbert, Stephen Langton, Cardinal Archbishop of Canterbury, and William Wykeham, Bishop of Winchester—architect, statesman, and father of the public-school system in this country. Especially appropriate is the inclusion among the figures of Bishop Wykeham, seeing that in the year 1362 he was ordained sub-deacon and priest in the chapel adjoining the west end of St. Saviour's Church. In addition to the Prince Consort memorial his Royal Highness unveiled two other windows, one to perpetuate Edward Alleyn, the actor, and presented by the governors and scholars of the college that bears his name, and the other in memory of Elizabeth Newcomen, a benefactress of the parish in the seventeenth century, this last being the gift of the scholars and governors of her scholastic foundation. The design of the three memorials is the work of Mr. C. A. Kempe, and is, in each case, appropriate and artistic.

MESSRS. CHRISTIE, MANSON, and WOODS sold on Saturday week the collection of modern pictures and water-colour drawings of Mr. H. Howard, of 4, Lancaster Gate, Regent's Park, the 128 lots realising a total of about £2000. The water-colour drawings included an example of Copley Fielding, a view near Lewes, Sussex—96 guineas; and the pastels, a pair of portraits of two ladies in fancy dress, of the period of Louis XIV.—£70. Pictures: Vicat Cole, Streatley Reach—70 guineas; C. M. Dubufe, "Pandora"—68 guineas; three by G. Romney, Lady Hamilton as "A Vestal Virgin"—135 guineas; the same as "Miranda," with lithography by J. W. Slater—98 guineas; and Jane, Duchess of Gordon, and her son—40 guineas; several by G. B. Willcock, the

best being Holly Street Mill, Chagford, Devon, and Nympt Hill, near Moreton—each 38 guineas; and Bathford Hill, near Bath—39 guineas; and J. van Stry, view near Dordrecht, cattle reposing—70 guineas.

MESSERS. CHRISTIE, MANSON, AND WOODS have just sold a small collection of interesting objects and old English furniture from Bilton Hall, Rugby, formerly the residence of Joseph Addison, and property from other sources. The Addison articles included an old English walnutwood arm-chair, arms carved with scroll foliage—21 guineas; an old English bench, boldly carved with scroll foliage—26 guineas; a panel of old English needlework, representing a stag hunt—£20; an old inlaid walnutwood cabinet, carved with Moses with the Tables of the Law, 89in. by 90in.—44 guineas; and a pair of Chippendale mahogany folding card tables—32 guineas. The other properties included a Louis XVI. oblong table of mahogany, richly mounted—76 guineas; a large cylindrical-shaped old Nankin vase, painted with dragons, scroll foliage, and flowers, in white on blue ground, 18in. high—155 guineas; a stomacher, of enamelled silver gilt and gold, richly mounted with coloured stones—95 guineas; a silver censer of Gothic design, with numerous figures of the Madonna and Infant Christ—£40; a tall cup and cover, formed of an ostrich egg, mounted with silver gilt—£42; and an oviform vase and cover of silver gilt, richly chased with the Triumph of Neptune and Amphitrite in two medallions, 23in. high—£75.

CANON GREENWELL and other antiquaries are engaged in superintending excavations near Driffield, Yorkshire, where are situated some 200 ancient burial mounds. Up to last year these were locally believed to be the burial places of Danish settlers, but the discovery of chariot wheels and horses' bits, as well as some enamelled ironwork, settled the question of the origin of the mounds, which were raised over the bodies of persons of the early iron age (about 100 years before Christ). A further number of the mounds have already been opened, with interesting results. In one mound, 20ft. in diameter and 2ft. high, a grave was found 5½ft. long, 4ft. wide, and 9in. deep, which contained a perfect skeleton, lying on its left side, with the head to the north-east, the arms being bent up, with the hands near the head, and the knees in the same direction. The bones were in very good condition, although broken. In this mound was also found an earthenware food vessel of dark-coloured ware, 6in. in height, the pottery being characteristic of the period. At the back of the head of the skeleton was a small bronze fibula, very well made, and in excellent preservation. In another grave the body had been laid on the right side, and the spinal column was curved, the head bent forward, indicating pressure from the earth above. The left arm was under the chin. No ornament or vessels were found therein.

A CONFERENCE of artists, clergy, and others interested in the work of beautifying churches by decorative Art was held last week, under the auspices of the Clergy and Artists' Association, at the Chapter House, St. Paul's Churchyard, "to consider the best means of promoting the reunion of religion and Art." The Dean of Rochester, who presided, said that there was no better example of a church having been vastly improved by Art in every sense than St. Paul's Cathedral. Gounod once told Dr. Stainer that the mid-day celebration at St. Paul's was the finest service that was held in any Church in Europe. Such praise from one who was of another communion was remarkable. So much for music. With regard to those branches of Art which charmed the eye one had only to gaze at the reredos and the beautiful mosaics. There was no church in Christendom which had done so much for the revival of Art and religion as St. Paul's. Art was expelled from the churches of England on account of its abuse in the shape of a combination of Art with idolatry, with winking pictures and pretended miracles. Art had been well called the handmaid of

religion, but the handmaid had been superseded by a kind of charwoman, of whom it might be said she wanted nothing but what she broke. Sixty years ago the state of our churches was disgraceful, but now there seemed to be a change for the better. With the great revival of spiritual religion in England there had come a desire for the re-union of religion and Art. It was a mistaken idea that things beautiful in churches were all Roman. The Pope had not got all things that were beautiful in Art.—The Rev. W. H. Draper, Sir William B. Richmond, R.A., and Canon Rowsley also addressed the meeting.

THE annual examination of the Carpenters' Company for shop and outdoor foremen, &c., took place at the Company's Hall, in London Wall, and at their Technical Schools, in Great Titchfield Street, during last week. The usual course of lectures, given for the benefit of the candidates during the previous weeks, had been very numerously attended. These lectures are delivered by professors of Architecture and engineering, and other eminent men. The number of candidates who entered for the examination was well up to that of the last two years. The average number of marks gained was in excess of that of any previous year, showing that each year a higher standard is reached. The Carpenters' Company was assisted by the usual Board of Examiners. The names of the successful candidates in order of merit are:—First Class: Jno. Crewdson (gold medal), W. H. Betambeau and F. Hartnoll (silver medal), W. B. Sweett (bronze medal), J. Packham, T. E. Kinch, G. M. McCorquodale, and J. H. Davies. Second Class: W. J. Barnes, W. J. Collins, Ernest White, A. H. Walker, G. H. Griffiths, H. S. Jones, G. W. Adkins, A. H. Imber, A. Norton, W. Wintersgill, W. Forth, G. W. Filby, C. R. Tinson, A. Pringle, and F. J. Griffiths. Candidates already holding the Company's certificate who came up to improve their condition and failed to do so, do not appear in this list, although they may have maintained their former position.

THERE is a big gap in Fleet Street now, where once stood the banking house of Messrs. Gosling and Sharpe, under the sign of the "Three Squirrels," and next to the "Palace of Henry VIII. and Cardinal Wolsey," otherwise the barber's. The old building, itself the successor of older ones, all of them bearing the cognisance of the "Three Squirrels," is gone; another, more roomy and probably much handsomer, is to rise on the same site. Fleet Street is a busy street; not one where people have much time to stand and look about, but a bustling thoroughfare where archaeological curiosities are the last things which the passer-by would expect or wish to arrest his attention. Few, therefore, of the thousands who daily passed up and down along the south side of the street ever noticed the three little iron squirrels on the bars of one of the ground floor windows of Gosling and Sharpe's Bank, and few ever observed the strange wooden sentry-box which was flattened against the wall. But those three squirrels were there, in the same place, but in a quaint building, over three hundred years ago; and from that sentry-box, in the days when the police regulations were extremely defective owing to the fact that there were no police to speak of, the watchman (with a stout cudgel) kept an eye on the door of the bank and took stock of its customers. He was there for the purpose of raising the hue and cry, and no doubt also assisted in the chase of any ill-conditioned varlet who might have gone off with Gosling and Sharpe's spoons. Gosling and Sharpe's bank, as one of its recent historians relates, is one of the very oldest in the City of London. Exactly how old is not known.

WE understand that Mr. Akers-Douglas has asked Professor A. H. Church, F.R.S., who has just presented to the Office of Works some further memoranda concerning the wall paintings in the Palace of Westminster, to advise as to the steps to be taken to carry out his further recommendations on the subject.

These have not yet been published, but they suggest that during the summer of 1899 the frescoes in the House of Peers should once again be cleansed under his supervision, and that the four glazed corridor paintings, "The Burial of Charles I.," "Charles I. Erecting his Standard at Nottingham," "The Parting of Lord and Lady Russell," and "The Last Sleep of Argyll," should be so treated as to remove all their present disfigurements, such as the grey film and the numerous dark, circular patches, possibly of fungoid origin, which are increasing on various parts of the surface of one of the pictures. The professor adds that, in his opinion, it will be necessary to repeat the cleansing operations in regard to Maclise's famous picture in the Royal Gallery every third or fourth year, and recommends that a similar course should be adopted in the case of the five frescoes in the Queen's Robing Room.

ONCE more the London County Council blocks the way—this time, says the Electrician, to a useful and much-needed development of electric tramway traction in London. Blind alike to the success of the overhead trolley system in every civilised part of the globe, and to the urgent need for improvement in the scarcely civilised transportation arrangements of the first city of the world, this so-called "progressive" body has been pleased to veto every proposed introduction of the trolley system within the area it controls. On Wednesday last the committee appointed to consider the London United Tramways Bill decided not to dispense with the regulation that consent must be obtained from the London County Council as to the form of traction; although, it seems, they are strongly of the opinion that the congested state of London makes the speedy adoption of electric traction on tramways necessary. The pointed hint to the London County Council to come to a reasonable arrangement with the tramways company will, we trust, not be without good effect.

THE Council of the Architects' Benevolent Society have just issued their annual report in a pamphlet, which also includes the list of donors and annual subscribers, bye-laws, statement of accounts, etc. The amount received in annual subscriptions during the year was £456 10s., and, with recent additions to the list of annual subscribers, the total number now reaches 300. The Council feels that this number, however, is not sufficiently representative of the large body of Architects practising in the United Kingdom, and in pointing out that the usefulness of the Society would be increased in proportion to the augmentation of its list of subscribers, the Council remind those who have withheld their hand that an annual subscription of one guinea has the privilege of recommending two applicants for grants during the year. The capital account of the Society has been increased by the bequests of £100 each of Mr. David Mocatta and Mrs. Ann Mocatta, and by the following donations:—The Merchant Taylors' Company, £21; John O'Gaunt Sketching Club, £15 1s. 7d.; Mrs. C. E. Barlow, £12; Mr. Wm. Emerson, £6 13s. (thus bringing the total amount of his donations to £100); the Nottingham Architectural Society, £5 5s. Applications for relief during the year were more numerous than usual, and after proper investigation in each case, the sum of £607 15s. (as against £569 10s. in 1896) was distributed to forty-three applicants; and £70 was paid to the Society's three pensioners. It is proposed—as the invested capital of the Society reaches £10,000—to increase the present list of three pensions of not less than £15 a year each to six pensions of not less than £20 a year each. Thus the good work of the Society is reaching further afield year by year.

A MISCELLANEOUS collection of objects of Art produced some good prices at Christie's, when an Elizabethan jug of mottled brown stone ware, mounted with chased silver, fetched £215; a large Norwegian silver-gilt tankard, £69; and a pair of Queen Anne silver table spoons, with chased bowls and flat handles, sold at £3 8s. per ounce.

STRUCTURE AND PROPERTIES OF TIMBER.*

By GEORGE ELLIS.

IN dealing with the structure of wood I do not propose entering elaborately into scientific differences of cellular tissue, or the mysteries of protoplasmic growth; but rather to give you a general idea of the constituent construction, and deduce, therefrom, explanations of sundry characteristics that will be familiar to all of you, and which may possibly prove of some little service in your business. First, I must explain that my remarks are confined to exogenous trees. As you are probably aware, botanists divide the trees of the world into two great classes, or genera, according to the method by which they increase their growth; those which increase by development of cells within earlier growth are termed Endogens, those that do so by deposits upon the outside of former layers, are Exogens. It is from this latter class that the timber used for constructional purposes, at least in the Northern Hemisphere, is solely derived. These are again generally sub-divided into hardwoods and softwoods, a very arbitrary distinction, as many of the so-called hardwoods are actually and comparatively softer than some of the softwoods. The softwoods are all resinous, and are drawn from the order Coniferae: this name refers to the cone-shaped seed vessel which they bear. The hardwoods are mainly non-resinous, and with acrid or aromatic secretions. These are drawn from the order Dicotyledons, which have two similar lobes in their seed vessels, and their germinal leaves in pairs. A piece of timber from one of these trees may be described as composed of

A VAST NUMBER OF EXTREMELY MINUTE TUBES,

arranged in more or less regular rings around a central shaft—the medullary sheath, containing the pith cells. These tubes vary in size and shape, as their functions and the kind of tree. They are disposed vertically, or, rather, in the direction of the length of the stem, and are usually spoken of as vascular bundles, i.e., bundles of vessels. Each tube is divided horizontally into cells of varying size, but always many times longer than wide. In some of the conifers these cells are of extraordinary length, having been traced for many feet without the discovery of a partition. These bundles of pipes or tubes, when viewed collectively in cross section, form the concentric bands called annual rings. Interspersed between the bundles, in a radial direction, are numerous narrow bands of cells that have the appearance in longitudinal section, of low walls running from the outside of the tree towards its centre. These are the medullary rays. Finally, circumscribing all, comes the bark, also formed of several layers of cellular tissue, the component cells of which are very much narrower in a radial direction than those composing the interior substance, and laid, as it were, like bricks in stretching bond, around the circumference. If we examine these various series of cellular tissue a little closer, we shall find that there are great differences in their appearance, compositions and functions. But to make the description clearer I will first briefly describe the process of growth in a tree. When a seed commences to germinate, it first pushes a root downwards into the earth, and then a stem upwards into the air. The root develops rapidly, throwing out lateral shoots on all sides; it is formed very similarly to the stem, and its tissue eventually becomes continuous therewith. The stem, consisting first of the pith and epidermis, the latter a primitive and temporary covering, eventually superseded by the cortex, is formed of cells that are continually dividing within themselves, but vertically much faster than laterally, obviously if it were not so, first the plant then the stem of the tree would be thicker than high. As each cell divides, fed by the solutions absorbed

by the roots from the soil, it goes on increasing in size until the daughter cell is as large as the mother cell, when that in turn divides, and so on continuously. After a time the ends, if I may so call them, of the superimposed layers of cells get absorbed, the walls coalesce, and a tube results. The active cause of the upward flow of the fluids through root and stem is primarily, leaf formation, these soon develop, and are built up, like the rest of the plant, of

VARIOUSLY ARRANGED CELLULAR TISSUE.

The mineral salts and other solutions, formed by rainwater, passing up the tubes of the pith, on reaching the leaf surface undergo sundry changes in their composition, due to the action of the air and sunlight, so that the cell growth of the leaf, penetrating downwards into the stem, becomes much denser and fibroform, producing the lignine or woody matter of the plant. Eventually the increased girth of the stem becomes too great for the fluids to be supplied through the central cells of the pith column in sufficient quantity, and they gradually go out of use and dry up; their office being taken up by the outer layers of tube vessels, which then become the conduits of the sap: as the diameter of these layers increase, and generally one complete ring is formed each year; they, of course, recede further and further from the centre, and some other means are required for the irrigation of the interior. This is supplied by the formation of medullary cells, which push their way through from the outside cambium towards the pith; not by the penetrating walls of the vascular tubes, but by wedging themselves between two contiguous rows, thus forming conduits for the descending sap of the leaves to the interior tissues. The next important change that occurs is that the inner rows of tubes near the pith get filled up with solid matter, deposited by the returning sap as it infiltrates through them to feed and increase the tap root, because you must understand that the sap movement is a circulatory one, ascending during the spring in the form of a thin watery fluid—active for vascular growth by way of the sapwood of stem and branch into the leaves, where in that natural laboratory it undergoes sundry chemical changes, then descending during the autumn heavily charged with saccharine matter by the way of medullary rays, and interior wood to the root system, forming ligneous and fibroform cells. The more fluid portion of the descending sap flows down between the libra or internal cells of the cortex, and the loosely-formed spring tissue of the stem, depositing thereon a relatively thin layer of dense, thick walled cells, forming the dark zone in the annual ring. A similar but still

FINER ZONE OF CELLS

is deposited upon the spring growth of the libra, which I have indicated in my drawing under the name of bast cells. When an inner layer of vascular tubes gets charged with solid secretions, it becomes heartwood, and is, so far as the power of increasing itself is concerned, practically dead; it then, however, is the perfect wood for man's use, and remains in much the same condition until the tree reaches maturity, when decay usually commences. Annually, as new layers of cells are developed from outside the sapwood (this active part being known as the cambium, or growing tissue), some of the inside layers of the sapwood get filled up, producing heartwood. The cambium develops cells of various kinds; some become vascular tissue, some medullary rays, some libra, or inner bark, in some cases cork, bast fibres, &c. The causes which produce the various forms of cell have not yet been determined. These cells contain protoplasm, nuclei, and starch grains. It is difficult to explain in a few words what the protoplasm is, but it may be defined as the life-giving substance of the cell, and it is in a constant state of circulation around the nucleus in each cell whilst the tree is standing. The starch grains seem to be its food, and are derived from the sap. Towards winter the cells become heavily charged with starch granules, for the purpose apparently of affording nutriment to the protoplasm whilst vegetation is dormant. The larger cells are termed tracheids—pine and other conifers are

mainly composed of this variety; their walls are dotted with minute depressions called bordered pits, whose presence is intimately associated with the raising of the sap. Between them are spiral vessels and woody fibre. The spiral vessels are tubes of nearly circular section, their walls formed of thread-like membrane wound around as a helically ascending screw. A thin band of these vessels comprise the first-formed layer of heartwood, termed the medullary sheath, and it seems very probable that it is mainly to the isolating action of this band that the destruction of the pith cells is due. The wood fibres are long narrow cells with small lumina (as the space between the walls is called), thick walls with pointed ends, and the radial sides pierced with numerous fine, slit-like openings; it is to the presence of these fibres that the toughness of the wood is due, they are among the products of the descending sap. Other vessels more intimately connected with the spring growth of tissue, are large ovoid tubes with walls thickly covered with simple pits, their lumina always filled with watery fluid; these are distinguished as pitted vessels, and wood-parenchyma vessels; that have the peculiarity of retaining their cellular formation intact, as do also the medullary rays. The

CELLS OF THE MEDULLARY RAYS,

have very hard or horny walls, and they not only connect the cambium with the pith as canals, but also act as stays to strengthen the vascular tissue. This is, of course, but a very incomplete explanation of the various processes of growth, &c., but time will not permit of my going further into the matter, and I think that I have said sufficient to render easier of comprehension, sundry phenomena displayed by timber, when subjected to ordinary conditions of building. Perhaps the most familiar of these that I may refer to are the clefts that occur in drying, called shakes. When a tree is cut down, its fluid contents soon commence to evaporate, if it is of considerable size, or is approaching maturity, there will be a large proportion of heartwood, with its pith dried up and loose; this will afford access to currents of air into the very heart of the tree, drying out the moisture, and producing cleavages, in the planes of the medullary rays—as that is the direction of least resistance, because the partitions of medullary cells, acting like wedges between the rows of cellular tubes, have a tendency to produce rupture there. This cleavage is greatest at the heart, diminishing off to a hair line as it approaches the sapwood; and is technically known as a Heartshake. If on the contrary, the tree is young, containing much sapwood, and is barked immediately on felling, the outer layers, containing relatively more watery matter, dry more rapidly than the inner; the walls collapse and numerous small fissures occur in the direction of the annual rings; these appear in the boards as Deep shakes, and are very detrimental; occasionally the fissures will be radial, producing flat shakes in the converted stuff. These are sometimes, when extensive, confounded with the star shake, which is, however, a defect of the living tree, and is produced before it is felled. The Star and the Cup shake are varying results of the same cause, which I will explain to you. As I have before mentioned, the heartwood of the tree is to all intents dead; therefore when in the spring the sapwood, becoming charged with moisture and influenced by the activity of the cambium cells, extends itself circumferentially, the inert heartwood does not respond, and in many instances

A RUPTURE TAKES PLACE

between the growing and the finished rings, resulting in a Cup shake, that may or may not extend throughout the entire circuit of a ring. More frequently, however, it happens that the adhesion of the annual rings to each other proves stronger than that of the component bundles of vascular tubes, and the effect of the expansion is displayed in a number of clefts along the medullary planes, and converging on the centre, thus producing the Star shake. You will see by this that the essential difference between a Heart shake and a Star shake is that the former, fully developed

* A paper recently read at a meeting of the British Institute of Certified Carpenters.

at the centre, dies off imperceptibly as it reaches the sapwood, whilst the latter, more pronounced at the circumference, diminishes gradually as it penetrates towards the heart, which it but seldom reaches. Incidentally a Cup shake affords evidence that the viscid secretions of the tree travel by way of the medullary rays, because the ruptured ends of these are always marked by masses of exuded resin, etc., and frequently the entire cleft is thus filled. Another familiar property of converted timber, that of warping, is rendered plain in the light of the previous explanation of its cellular structure. When a board is cut, tangential to the annual rings—that is, parallel to a plane passing through the centre of the tree—it will warp in seasoning, however it may be secured, and observation will have taught you that it will always cast hollow on the side nearest the outside of the tree. The reason is to be found in the differing density of the heartwood and the sapwood, the latter open and loosely constructed, its tubes filled with air or fluid matter close in greatly on the drying out of their contents; those of the heartwood, filled up with solid secretions, scarcely alter in the process. Now, a board cut as I have described will have much more sapwood upon its outer face than upon the side nearest the centre; therefore the effect of the closing in of the cellular tissue will be more apparent on that side, in other words, the side containing the more sapwood will become narrower than the other side. The medullary rays also contribute to the warping action in that they collapse sideways, but preserve their length intact. So that if you want a board

TO SHRINK EQUALLY ON EACH SIDE

and so remain flat, it must be cut radially, that is, with its face parallel with a medullary ray. And you may easily discover if a board has been so cut, by observing the direction of the annual rings at the end; these should be parallel to the edge, or square with the face of the board. Some trees bend much, when young, or get twisted by the wind, but become straight and regular on the outside when older; the heart, however, will always retain its sinuous or twisted course, and boards cut from such a tree will be of no use for joinery, as nothing will prevent them winding when drying. The reason is that the plane of cut does not pass through the same annual rings throughout the length of the tree, and one portion of the board will be of much older wood than the other, and consequently its shrinkage can never be regular and equal. Sapwood, besides being comparatively weak, is from the nature of the contents of its cells extremely subject to the attack of animal and vegetable enemies; directly the tree is cut down, and the motion of the sap ceases, microscopic worms and fungi enter and commence its destruction. The bluish, or greenish, tint which the sapwood of pine and deal assumes, after a short time, is due to the presence of a fungoid growth in the cells. The freedom from similar attacks which the spruce seems to enjoy is probably due to the antiseptic action of the tar in its secretions. A Knot is the point of juncture of a branch with the parent stem, and its hardness and cross grain are due to the interruption of the downward flow of the sap, which, failing to find a continuous channel in the direction it has hitherto pursued, divides, and wells round the upcoming cambium of the trunk. Its delay causing a concentration of the solids of the sap at this point, the surrounding wood cells get surcharged, and are hard and brittle. This want of continuity, or swaying round of the fibres, renders the wood weak at the points

WHERE KNOTS OCCUR,

and the larger the knot, the more the defect is intensified, which is a sufficient reason for rejecting baulks with many large knots for weight-carrying purposes. They are equally to be avoided in boards for joinery, as in addition to their weakness, there is great difficulty in preparing their surfaces smooth, or preserving paint from the solvent action of their abundant secretions. The disposition of the knots in a plank will pretty accurately

indicate the species of tree from which it was cut. If they are gathered near the centre or pith it will probably be a conifer, as the branches of these trees take their rise directly from the pith column; if distributed near the outside it will be a hardwood, as these branches spring from the outer side. The pines may be distinguished from spruce or fir by noting the relative position and shape of the knots. In the fir they will be in clusters, very small and numerous, with a few scattered ones between the nodes. In the pines they will be large and disposed regularly, in each side of the centre, with long, clear internodes. The branches of the spruce stand out nearly at right angles with the stem, and, consequently, the knots appear on the surface of the boards as nearly circular discs, or lie in obtuse angles with the centre. The pines are of closer habit, their branches shooting upwards, and the knots appear elliptic in section, making acute angle with the pith. European pine may be distinguished from American by the translucency of its knots, and their moist, bright reddish appearance. The latter are hard, opaque, and dry.

KEYSTONES.

AN iron church has been built in the parish of Walmsley, near Bolton.

A new infant school is being built in Holland Street, Manchester. The building will cost £2300.

A MISSION CHURCH has been built in the parish of St. Mary's, Lancaster, at a cost of over £1500.

LADY FARQUHAR has opened a new church institute, which has been erected in connection with St. Stephen's Church, Portland Town, Marylebone.

A HANDSOME new chapel at Mill Hill School, Oxford, was recently opened. The new chapel, which is from designs by Mr. Basil Champness, cost £6000.

THE Street Improvement Committee of the Bradford City Council have decided to recommend the Council to take over Brewery Street, and to make the footpath thereto an ordinary road.

THE ironwork portion of the East Pier of the Dover harbour extension works has now been entirely completed. The stonework has attained a length over 1600ft. out of the 1950ft. it is to measure.

PLANS have been prepared to extend the west end of Carnforth parish church and provide additional accommodation at a cost of £3000. It has also been decided to build a new parsonage at a cost of £1200.

EARL NELSON has laid recently the foundation-stone of a new tower which is being erected in connection with the extensions and improvements at the ancient Church of St. Peter, Derby. The work is to cost £6000.

AN extensive church scheme is being undertaken in the district of Ewood, Blackburn. It is proposed to form a new parish chiefly from Christ Church parish, but it is also proposed to detach a certain part from three adjacent parishes. New schools have already been built at a cost of £3300. A site has been purchased for a new church at a cost of £740.

THE Plymouth Corporation Finance Committee has held a special meeting to receive plans prepared by the City Engineer for the new temporary council chamber, which the Council had decided should be erected at a cost not exceeding £2500. The plans, which embodied alterations suggested by the committee at a previous meeting, were approved, and instructions were given to proceed with the work.

VISCOUNT POWERSCOURT'S collection of drawings by Thomas Rowlandson sold at Sotheby's, in separate lots, for the aggregate sum of £200, an average of about £2 each, but only a few of the drawings brought prices over £5. "Exhausted Gamblers" (the old card-room at Brooks's Club) went for £12 12s.; "Hopkins's Repository, Barbican" (a horse sale), for £9 9s.; "Launceston Market Place—Recruits on Parade," £9 5s.; "The Swing," for £12 15s.; and "Dinner Time with the Vicar and with the Curate" a pair, £6.

Professional Items.

ABERDEEN.—The flooring of St. Mary's Chapel, East Parish Church, has been begun. It has been decided to employ a different material for a portion of the floor. This is a number of old flat tombstones, which have been lying in the churchyard, or on the pathway near the church, or stored in out-of-the-way corners since their removal from the interior of the church when the latter was rebuilt. Some of the tombstones are sculptured, and on some of them it is possible to make out clearly the inscription. There is, for example, a finely-sculptured tomb of Peacock. There is another of Gilbert Harvey, and a third of one Alexander Cushny. People might naturally be somewhat startled on hearing of gravestones being taken from the churchyard to floor the chapel. It is explained, however, that not one of the stones has been taken from a grave. That is to say, the stones had at one time been moved from the graves of the persons whom they commemorate, as is shown by a reference to the registers of burials, and it is urged that the course now taken is for the preservation of the stones from the destruction which would otherwise overtake them.

Plans prepared by Messrs. D. and J. R. McMillan, architects, Aberdeen, for the proposed new Free Church at Fochabers have now been sanctioned. A site has been found on the side of the main road leading to the Square. In design the structure exhibits little or no departure from the conventional modern type of ecclesiastical buildings. It is cruciform in shape, the interior consisting of nave, apse, and two transepts. The feature that first arrests the eye is the tower and spire, a fine structure of shapely proportions, over 100ft. in height. It is supported by heavy buttresses, carried up from the base and finished off at the four corners with neat turrets, capped with artistic terminals. The church proper is in the early English Gothic style of Architecture, with the heavily buttressed walls and pointed arched windows that are characteristic of it. In the gable facing the highway is a Gothic window of handsome proportions, which forms a distinctive feature of the building. The main entrance is in the tower, and there are doors in both transepts and at the rear. The masonry will be of sandstone. Internally, the church is to be arranged and finished according to modern ideas.

BIRMINGHAM.—The scheme for providing a new Police Institute for Birmingham is at last assuming more practical shape. The foundation-stones of a centrally-situated building were laid last week. The plot of land on which the Institute will stand is at the corner of James Watt and Dalton Streets, and the building will be an imposing one. Within the walls will be found a gymnasium, baths, smoking and recreation room, assembly hall, library, and reading-room. The building is being constructed by Mr. T. Johnson, contractor, of Great Brook Street, from the plans of Messrs. Ingall and Son, architects, Temple Row, at an estimated cost of £6360.

CASTLETON.—New Wesleyan Chapel and Schools at Castleton, in the Bradwell Circuit, have been opened. The premises supersede a smaller building that has done duty for chapel and school purposes nearly a hundred years. The plan of the building provided for a nave 55ft. long by 33ft. wide, one transept 30ft. by 22ft., class-room 15ft. square, and vestry. The local limestone has been used for the walling, with Stoke Ashlar facings. The roofs are covered with green Westmoreland slates. There are in the east and west gables five light windows with traceried heads, and the nave is further lighted by five two-light windows with arched heads. The entrance porch in the angle has an arched doorway with moulded and panelled buttresses, and carved spandrels. The roof is open as high as the collar beam, and is framed with hammer beam trusses springing from carved stone corbels, and filled in with tracery. The easternmost bay is raised and divided from the rest

of the nave by an ornamental screen, behind which is the communion space with table and reredos, and the organ and choir stalls. Mr. H. W. Lockwood, of Sheffield, has been the architect, and the contractors have been, for masonry, Mr. Jas. Fidler, of Eckington; for woodwork, Messrs. Wheat and Son, of Castle-ton; for slating and plastering, Messrs. Chas. Chadwick and Sons, Sheffield; for plumbing and glazing, Mr. George Rusling, of Sheffield; for painting, Mr. Roe, of Castleton; and Mr. Frank Tory, of Sheffield, has done the carving.

CHELMSFORD.—Messrs. R. E. Crompton and Co.'s electrical engineering works at Chelmsford, which were entirely destroyed by fire, have been rebuilt. The works, which externally have nothing to boast of from an architectural point of view, cover an area between eight and nine acres, the main shop occupying over three acres. This building is very lofty, well lighted and ventilated, and at any time can be easily extended towards Chelmsford. Adjoining this main building is the smith's shop, and close at hand are other shops, where the different processes of the manufacture of electrical machines are carried on. The Company has its own water supply and sewage works, the sewage being electrically treated. A large reservoir has also been constructed on the lower portion of the grounds.

DENABY MAIN (YORKS.).—At the mining village of Denaby Main, a Roman Catholic Church, erected at a cost of about £3000, has been consecrated. Stone from local quarries has been used by the contractor, Mr. Frank Robinson, of Thornton, near Bradford, under the direction of Messrs. Empsall and Clarkson, the architects. The church is lofty, and is well ventilated, lighted, and heated. The work has been attended to by the following:—Joinery, Messrs. Broadhead and Pickering, Bradford; plumbing, Mr. Lindley, Leeds; plastering, Mr. Andrew Taylor, Eccleshill, near Bradford; slating, Mr. Thornton, Eccleshill; painting, Mr. Walton, Frisinghall, Bradford.

DUBLIN.—St. Thomas's Church, Marlborough Street, Dublin, was founded in 1758, and the dilapidation inseparable from age, which, to a noticeable degree, has latterly made itself evident, has rendered restoration necessary. Extensive works are contemplated in connection with the roof, ventilation, heating, floor, tiling, the chancel, the windows, and the front of the church, and it is proposed to complete the original plan by the erection of a granite pediment, and to place the front, doors, railing, and pavement in thorough repair.

GLASGOW.—The memorial stone of the new Queen's Cross Free Church, Glasgow, has just been laid. The new church is situated at the corner of Garscube Road and Springbank Street, and is designed in a free treatment of late Gothic style, all the work being of a most substantial and thorough character. The principal feature is a tower of robust proportion situated at the corner of the street. This is flanked in Springbank Street with the window of the choir chamber, the sill of which is at high level, and in Garscube Road by the transept gable. The main body of the building is so arranged as to give an uninterrupted view of the pulpit. The passage from the main entrance, which is situated in Garscube Road, is a narrow aisle, from the inside piers of which the roof principals spring. A transept and back gallery are provided, and there are four exit doors. The pulpit is placed at the side, and accommodation is found for the choir and organ chamber at the side of and behind the pulpit. Messrs. John Honeyman and Keppie are the architects.

Wellfield United Presbyterian Church, Springburn, the foundation stone of which has just been laid, is at the corner of Balgray Hill and Murdoch Street, and extends back to Sutherland Street. The very rapid fall of the ground on the hill side has added considerably to the difficulties of planning, there being a difference of over 27ft. between the levels of the back street and the lower point on Balgray Hill. To meet this, the hall has been placed

facing Sutherland Street, on the higher level, and entering from Murdoch Street, the rooms, vestry, session-house, &c., on an intermediate level, while the church occupies the corner of Murdoch Street and Balgray Hill, with entrance from both streets. The main entrance faces Balgray Hill. Internally the church is planned with nave and side aisles, which are separated by moulded stone arches carried on splayed stone piers. There are galleries at sides and end, but the galleries are kept back behind the line of the stone piers, allowing these to be carried up in an unbroken line. Above the piers attached stone shafts are carried up, terminating in carved caps, from which spring the principal roof couples. The pulpit will be placed under a wide stone arch at the eastern end, and on each side, under smaller arches, an organ chamber is arranged. The hall is 54ft. long and 28ft. broad, and there are two large classrooms, which can be opened into one, forming a lesser hall for 100 persons. The style of Architecture is Gothic of the late decorated period, and the principal feature externally will be the tower and spire, which will be over 100ft. high. The lower stage is carried up square to the belfry chamber, where the plan becomes octagonal, with projected buttresses at the angles of the tower. The principal front to Balgray Hill has the main gable in the centre, flanked by the tower on one side and a projecting staircase on the other. The mason work is in red sandstone, and is already well advanced, the memorial stone being placed in the western face of the tower at the gallery floor level. The number of sittings provided is 808, and the expected cost of the whole scheme is about £7200. The architect is Mr. John B. Wilson, Glasgow, and the following are the principal contractors:—Mason, H. Nelson and Co.; wright, Thomas Brown; slater, Thomas Muir; plasterers, J. and A. Williamson; plumber and gasfitter, Thomas Munro; glazier, Joseph Miller; and painter, A. Stirling—all of Glasgow.

INVERNESS.—The Station Hotel has been remodelled. The work of construction was entrusted to Messrs. Ross and Macbeth, architects, Inverness. The principal town entrance to the hotel is now situated in the Station Square, in the corner of which a handsome stone porch has been built. This porch is a splendid piece of work, and gives an elegant and finished appearance to the whole block. It has in front massive columns surmounted by an ornamental balustrade, over which is a shield with the arms of the Highland Railway Company. Immediately inside the porch is a large and beautiful entrance hall, which with its tiled floor and tastefully panelled walls has a most effective appearance. From this hall a wide staircase branches right and left to the first floor, which is occupied by bedrooms and sitting-rooms. Similar staircases lead to the other floors, where also are bedrooms, service rooms, &c.

IPSWICH.—The foundation-stone of the new St. John Baptist's Church, Ipswich, was recently laid. The new edifice will cost in erection about £8000. Sir Arthur Blomfield, A.R.A., was consulted, the first idea being to enlarge the present church, but it was decided that the more satisfactory method would be the construction of an entirely new edifice. Sir Arthur Blomfield accordingly prepared the designs. The outer and interior walls will be of red brick, with Monk's Park stone dressings, the roof being of pitch pine, with Broseley tiles. The interior will consist of a nave and side aisles, a clergy vestry at the north-east corner, communicating with a choir vestry, and underneath will be a heating vault, for warming the church by means of hot-water pipes, passing under gratings in the wood-block floor. At the opposite corner will be the organ chamber, the chancel being situated midway, and the east window, with five lights and Gothic top, will face the roadway. There will be four entrances—two on the west side of the baptistry, one at the south-east corner, and one by the clergy vestry. The roof of the nave will be supported off the clerestory walls, and the pillars dividing the nave from the

aisles, which are 91ft. by 12ft. 7in. in dimensions, will be of red brick, alternately circular and octagonal. The chancel, 36ft. by 25ft., will be approached from the nave, which is 91ft. long by 28ft. 6in. wide, by four steps, and will be designed in red and black tiles. There will be one step from the chancel to the Communion table, on the south side of which will be a sedilia, of Monk's Park stone, with marble shafts. Cathedral glass will be utilised for the windows. A four-light window at the west end will be placed immediately over the roof of the baptistry, and this portion of the façade will be completed by a bell-turret, with provision for two bells and a weather vane. Ample accommodation will be provided in the vestries—that for the choir being 16ft. square, and that for the clergy slightly smaller. The space allotted in the organ chamber is 18ft. by 11ft. 9in. The pulpit will be carved in oak, the font being of stone, with marble shafts. Only a portion of the body of the church is to be constructed at first, providing seating accommodation for about 600.

A new Liberal Club has just been erected in the Stoke district of Ipswich. The site selected was in Austin Street. The club premises are compact, and are, as it were, in two portions, divided by a corridor. On the right side of the entrance are the games room, the billiard room, and the reading room, in the order named, each spacious and very lofty, and divided from one another by partitions, which, being removed, convert the three into one long room 52ft. by 20ft., to be used as an assembly room. On the left side of the entrance is the refreshment bar, a roomy apartment, and the back of the bar communicates with the steward's rooms, which are a compact block distinct from the club proper, with separate offices. The building of the club was entrusted to Mr. Edgar Catchpole.

LEEDS.—A new Sunday-school at Oxford Place Wesleyan Chapel, Leeds, is being completed. The old Sunday-school was insanitary and ill-adapted for the work to be done in it. The possibility of effecting an improvement was not considered; the building was pulled down, and Mr. G. F. Danby and Mr. W. H. Thorp, architects, Leeds, who are also responsible for the refacing and re-modelling of the chapel, were called upon to furnish designs for a new school. In the new building there are two main floors. The ground floor, on the same level as the chapel, and having direct communication with it by means of a well-lighted corridor 6ft. wide, includes a large lecture-hall with sitting accommodation for 240 infants, five classrooms, and a caretaker's living room; whilst there are also separate entrances for boys, girls, and infants. The upper floor is approached by two well-lighted stone staircases. On this floor is the schoolroom, which has an open timber roof 26ft. high, and is a most cheerful apartment. Ten classrooms have access to the schoolroom. The upper floor has communication with the gallery of the chapel. In the basement is a kitchen, storerooms, heating apparatus, and other conveniences. The whole of the building is well lighted with electricity. The total cost has been £26600. The contractors were Messrs. W. Thompson and Sons, Mr. G. Thompson, Mr. H. Pearson, Mr. Thos. Harrod, Messrs. Holmes and Co., and Messrs. J. and H. Smith.

LINCOLN.—The foundation stone of a new school-chapel in connection with the Newland Congregational Chapel, Lincoln, has been laid. The complete scheme will entail an expenditure of about £2000, but the present portion will involve about £1400. The building, of which Mr. J. H. Cooper is the architect, will be of brick, with Ancaster stone dressings. The contractors are Messrs. H. S. and W. Close.

MANCHESTER.—The Duke of Devonshire, as president of the Owens College, visited Manchester for the purpose of performing two important functions at the College. These were the opening of the handsome new library building, the gift of Dr. R. C. Christie, and the laying of the foundation-stone of the new Whitworth Hall. This building, like the

library, is to be from designs by Mr. Alfred Waterhouse, the original architect of the college buildings. It is to afford a hall large enough for all ceremonial purposes connected with the college and Victoria University, and will communicate with the Christie library through a covered cloister, the library being in turn connected with the main building by means of a bridge. The hall will be 120ft. long and 50ft. wide. The dimensions of the Christie library are: length, 100ft., width 46ft.; height to the top of the parapet 46ft.; and to the ridge of the roof 73ft.

NEWCASTLE, IRELAND.—The Slieve Donard Hotel, Newcastle, Ireland, was opened a few days ago. The establishment, which has been constructed and equipped at a cost of some £80,000, is in every way worthy of the splendid site upon which it stands. The architect is Mr. J. J. Farrell, Dublin; the contractors being Messrs. H. and J. Martin, Belfast, and the clerk of works Mr. Matthew Robinson.

OLDBURY.—A meeting has been held at the National Schools, Oldbury, for the purpose of considering a scheme for the renovation of the parish church. Mr. Ewood, Architect, of West Bromwich, submitted plans for the renovation and alterations of the church at an estimated cost of £658. The plans were approved.

OSWESTRY.—The memorial stones have been laid of the new Primitive Methodist Chapel at Oswestry. The design is by Mr. J. D. Mould, F.R.I.B.A., of Manchester, and the work has been carried out by Mr. Jabez Higgins. The extreme length will be 69ft., the width of the nave 36ft. 8in., and on each side there will be transepts. The end facing Chapel Street will be apsidal. The west end will contain a large stone-traceried window, which will be flanked with massive buttresses. There will also be traceried windows in the transepts. The building, which will be in Perpendicular Gothic, will have a battlemented tower at the entrance corner, surmounted by a spire.

RIPON.—Ripon received a very handsome addition to its architectural features last week in the presentation to the Mayor and Corporation, on its behalf, of what is known as the Victoria Clock Tower, which has been erected at the junction of the Palace and North Roads. The building has been erected from the designs of Mr. George Corson, of the firm of Corson and Jones, architects, Leeds. The structure is 10ft. square, and rises to a height of 43ft., culminating in a Crown Imperial in copper. The finishing of the tower is rather unique. On the angles are four octagonal buttresses, which rise above the parapet in pinnacles, with carved finials and crockets. From these spring four flying arches or buttresses, and from four smaller pinnacles, corbelled out over the dials, spring other four. These eight unite in a keystone or carved boss, which carries the stone terminal on which the Crown Imperial rests. Of this manner of finishing a tower there are few examples. The principal ones are those of St. Giles's Church, Edinburgh (eight ribs); King's College, Aberdeen (four ribs); the Tron steeple in Glasgow, and one at Newcastle. Formerly there was one at Linlithgow and one at Haddington. There are four dials enclosed within circular moulding within squares, the spandrils carved. On the stage below that of the clock the statue of the Queen occupies a canopied niche on the side fronting the city. The stone used in the building is from the Dunhouse Quarries, near Darlington, the builders being Messrs. W. Wilson and Sons, of Headingley. Messrs. Potts and Sons, of Leeds, have provided the clock, with its four illuminated dials.

WOODBIDGE.—A handsome window has been placed in the town church of St. John. The window, which is situated on the north side of the fine old church, near the chancel, is an extremely fine example of glass staining, the artist being Mr. A. L. Moore, of Russell Square, London. The design, in itself, is very appropriate, depicting in three lights the patron saints of the three countries.

Under Discussion.

ARCHÆOLOGISTS AT PETERBOROUGH.

Peterborough is to be the locale this year of the annual congress of the British Archæological Association, to be held from July 14 to 20. The congress will meet at the cathedral in the afternoon of July 14, and will be conducted over the building by the Dean, after which a perambulation of the city will be made. On the subsequent days visits will be paid to all the places of interest in the locality, including the famous house of Burleigh.

SCOTTISH SANITARIANS IN CONGRESS.

The Sanitary Inspectors' Association of Scotland recently visited Perth for the purpose of holding their annual congress. The annual business meeting of the Association was held in the Commissioners' Hall, Mr. Kenneth Cameron, Chief Sanitary Inspector, Aberdeen, the president, in the chair.—The president was re-elected, as were also the vice-presidents—Mr. Alexander Hay, County Sanitary Inspector, Lower Ward of Lanarkshire, and Mr. Robert Lindsay, County Sanitary Inspector, Mid-Lothian. Mr. George Dunne, Chief Sanitary Inspector, Govan, was re-elected secretary and treasurer. The report by the secretary was submitted, which stated that a number of amendments prepared by the Council of the Association had been accepted and were embodied in the Public Health (Scotland) Bill, which came into force on January 1st. During the year nineteen inspectors joined the Association, and six withdrew on resigning office. The number of members on the roll is 165—92 chief inspectors and 73 assistant inspectors. The funds of the Association continue in a satisfactory state.

THE PRIORY OF INCHMAHOMIE.

The Glasgow Architectural Association held its annual excursion on Saturday, 18th ult. The object of the visit this year was the small but picturesque Priory of Inchmahome, situated on a wooded island in the Lake of Menteith, Perthshire, amidst beautiful mountain scenery. A party of members and friends took train from Glasgow to Port of Menteith station, where carriages were in attendance to convey the visitors to the lake. On arrival on the island the Secretary read a short descriptive sketch of the building, and exhibited a plan. The Priory, which was in the diocese of Dunblane, was founded in and evidently commenced about 1238 for monks of the Augustinian order, and is an example of the best first pointed work; it bears in plan and general details many points of resemblance to Dunblane Cathedral, which was built at the same time. The buildings have suffered much at the hand of man since the Reformation, as much of it was taken away during the seventeenth century to build a castle on a neighbouring island.

ART IN THE EIGHTEENTH CENTURY.

Mr. Humphry Ward, in the second of a course of lectures upon English Art in the eighteenth century, dealt with the life and works of Sir Joshua Reynolds. He remarked that the great debt which English Art and civilization owed to Sir Joshua was not only due to his qualities as a painter; it was due in an almost equal degree to his personality. Perhaps his greatest achievement of all was to persuade the Court, the aristocracy, and the men of letters that Art is an essential part of civilization. In two ways he showed that he was something more than a great painter. He was able to form general views about Art and to state them authoritatively and in admirable literary form; and, moreover, his strong personal charm gave him the power of becoming and remaining the friend of the most influential people of his time. Proceeding to sketch the life of Sir Joshua, the lecturer described his early years, his residence in Italy from 1749-52, his immediate and wonderful success in London, and the different stages of his subsequent career, with the gradual modifications of his style. By a series of

lantern slides he illustrated the wide scope of the painter's invention, and showed how, though he painted over 2000 portraits, he seldom repeated himself, verifying Dr. Johnson's remark, "I know no man who has passed through life with more observation than Mr. Reynolds." Then, passing to the Discourses, he spoke of Sir Joshua's views on "the grand style," and of that curious paradox, noted by Mr. Ruskin, that his own immortal successes belonged to the class which he considered the highest. He told the story of the once famous picture of "the Infant Hercules," which was sold to the Empress Catherine for the then enormous sum of 1500 guineas, and which a few years ago was found, after a long search by an enterprising English lady, without its frame, with its face to the wall, hidden in the midst of a stack of pictures in one of the garrets of the Hermitage Palace at St. Petersburg. The contrast between the fates of these "grand style" pictures of Sir Joshua, and his portraits, of which the value is rising every year, was curiously significant. The lecturer announced that the remainder of the course would be deferred till the autumn.

SOME IRISH ANTIQUITIES.

At the annual meeting of the Royal Society of Antiquaries of Ireland, Mr. Thos. Westropp read a paper on some pre-historic remains found at Carran and Kilmorney, Co. Clare. They comprised some 400 cromlechs and other remains, dozens of which were levelled to the ground, and dozens were mere featureless heaps. The barony itself had remained absolutely unchanged in the course of six centuries. Mr. James George Robertson described a silver chalice of the date 1606, which is at present in the hands of a private owner. It was in good preservation. It had the appearance of having been originally gilt. Mr. G. D. Burtchaell, assistant secretary, read a paper entitled "The Bambino of New Ross," compiled by Mr. M. J. C. Buckley. Mr. Buckley said that this "bambino" was found in the east transept of New Ross old Church. This remarkable slab evidently represented the Nativity of Christ, treated in the manner of the 13th century, to which epoch it appeared to belong, and it had all the firmness and dignity of Norman carving.

HOW MUCH PER CENT.?

The Royal Institute of British Architects has now finally affixed the stamp of its sanction to the schedule of architects' charges, with one or two amendments on the form in which it appeared in these pages three weeks ago. The usual five per cent. commission "does not include the payment for services rendered in connection with negotiations relating to site or premises." This is the revised version. Other amendments we give in italics, as follows:—"Two-and-a-half per cent. is charged upon any works originally included in the contract for tenders, but subsequently omitted in execution." "Preliminary sketches and interviews where the drawings are not further proceeded with are charged for according to the trouble involved and time expended." "The clerk of works should be appointed by the architect, his salary being paid by the client." These are the principal alterations which were arrived at at a special meeting held on Monday week, and after considerable debate, in which Messrs. E. A. Gruning, J. Douglass Mathews, H. H. Statham, John Slater, C. Forster Hayward, Edmund Woodthorpe, W. Hilton Nash, S. Flint Clarkson, Wm. Woodward, Hampden W. Pratt, A. W. Tanner, Max. Clarke, H. Hardwicke Langston, C. B. Brodie, W. H. Atkin Berry, Zeph. King and others took part. At the close of the proceedings a vote of thanks was accorded the Practice Standing Committee for their labours in the work of revision.

The Local Government Board has inquired into an application by the Newton Urban District Council for sanction to borrow £3450 for works of sewerage and sewage disposal, and £1550 for purposes of public walks and pleasure grounds.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERAVON (Wales).—For additions to the parish church, for the Rev. Henry Morris and Building Committee. Mr. G. E. Halliday, architect, 14, High-street, Cardiff. Quantities by John W. Rodgers, surveyor, 14, High-street, Cardiff:—
Evan Thomas... £2,941 J. Davies... £1,825
M. Cox... 1,976 D. Jenkins, Swansea*... 1,730
T. Watkins and Co... 1,871 *Accepted.

BERKS.—For the foundations for the proposed new buildings of the County Asylum. Mr. G. T. Hine, architect:—
R. Talbot... £4,754 A. Walters Spencer... £4,321
C. Ford... 4,494 Benfield and Loxley... 3,962
W. Hawkins... 4,400 Oxford*... 3,962
*Accepted.

FEATHERSTONE.—For the erection of a new mixed school, for the Featherstone School Board. Mr. W. Hamilton Fearnley, architect, Featherstone. Quantities by the architect:—
H. Molekin... £3,552 Milson Dixon, Ackworth*... £3,455
G. Clements... 3,534 A. Sutton†... 3,261
Jackson Bros... 3,499 F. H. Curry... 2,792
*Accepted subject to the Education Department's consent.

LONDON.—For pulling down and rebuilding the "Queen's Head" public-house, Green-lanes, N. Mr. J. Stiles, architect:—
Burman and Son... £8,600 Goodall... £8,401
Antill... 8,569 Edie... 8,367
W. Shurmer... 8,464 Edwards and Medway... 8,228

LONDON.—For alterations, &c., at the City Orthopaedic Hospital, Hatton-garden. Mr. E. Herbert, architect:—
T. Rider and Son... £3,554 Wagstaff and Son... £3,089
Colls and Son... 3,487 W. Shurmer... 3,010
J. S. Shaw... 3,865 Lidstone and Son... 2,935

LONDON.—For rebuilding house and shop in White-chapel-road. Mr. J. Hamilton, architect:—
B. E. Nightingale... £2,396 Jarvis and Son... £2,340
W. Shurmer... 2,358 J. Beale... 2,257

LONDON.—For stables, &c., at Westcott-street, S.E., for Messrs. Pink and Co. Messrs. G. Elkington and Son, architects:—
H. L. Holloway... £5,120 F. and H. F. Higgs... £4,991
W. Shurmer... 5,045 J. Carmichael... 4,940
Perry and Co... 5,043 J. Smith and Son... 4,887

LONDON.—For stables, warehouse, &c., Stepney, for Messrs. Poulter and Co. Mr. H. O. Ellis, architect:—
W. Johnson... £11,470 W. Shurmer... £9,472
J. and H. Cocks... 10,390 Perry and Co... 9,414
Harris and Wardrop... 10,219 G. Munday... 9,322
J. H. Johnson... 9,721 Kilby and Gayford... 9,236
Lawrence and Son... 9,892 Holliday and Greenwood... 9,077
Ashby and Horner... 9,789 Turnbull and Sons... 8,919
Patman and Fotheringham... 9,621

LONDON.—For erecting warehouses for Messrs. Wm. France and Co., Limited, Tooley-street. Messrs. Barnes-Williams, Ford, and Griffin, architects, Railway-approach, London Bridge, S.E.:—
G. Pott and Son... £14,185 H. J. Williams... £12,725
J. W. Falkner and Sons... 13,887 Balaam Bros... 12,682
E. Lawrence and Sons... 13,020 W. Downs... 12,630
W. H. Lascelles and Co... 12,949 W. Shepherd... 12,500
A. White and Co... 12,830 J. Smith and Sons... 12,300
Ashby and Horner... 12,775 J. Greenwood... 12,284
F. and H. F. Higgs... 12,775 *Accepted.

LONDON.—For the erection of Catholic Church, Brockley (without decorations). Mr. Young Bolton, architect. Quantities by Mr. Joseph Rookwood:—
William Downs... £2,512 Ernest A. Roome... £2,320
Jerrard and Sons... 2,480 William Romain*... 2,249
Edwards and Medway... 2,450 J. O. Richardson... 2,219
Smith and Sons... 2,423 *Accepted.

LONDON.—For house and shop at New Barnet, for the Dairy Supply Company. Mr. H. O. Lane, architect:—
Porter and Son... £1,794 Dixon and Co... £1,553
Grover and Son... 1,786 C. Butcher... 1,510
W. Shurmer... 1,771 Kiddle and Son... 1,494
McCormick and Sons... 1,699 Ellwood... 1,484
W. Waller... 1,620 Daniels... 1,469

LONDON.—For the erection of a warehouse, Blackfriars-road, S.E., for Messrs. J. Cohen and Co. Mr. C. H. Flack, architect, 9, Bedford-row, W.C.:—
Holloway Bros... £7,150 Patman & Fotheringham... £6,078
Rider and Son... 6,524 ham... 6,049
Eddie... 6,464 Wall and Co... 5,965
Fry... 6,424 Smith and Son... 5,941

LONDON.—For rebuilding bank premises, Shoreditch, for the London and South-Western Bank, Limited:—
Tennant and Co... £7,666 Yerbury... £6,750
Gough... 7,174 Hore and Sons... 6,718
Lawrence and Sons... 6,820 Carmichael... 6,170
G. Barker... 6,750

LONDON.—Accepted for the erection of houses and shops at Hither Green, S.E. Mr. Charles Young, architect, 37, Great James-street, Bedford-row, W.C.:—
George Cooper... £2,800

LONDON.—For the supply of gas engines for Lots-road pumping station, for the London County Council:—
Crossley Bros... £11,550 0 Campbell Gas Engine Co... £10,000 0
Fielding and Platt... 11,350 0
J. E. H. Andrews and Co... 10,837 14

LONDON.—For alterations and additions to the Queen's Palace of Varieties, High-street, Poplar, E., for Messrs. Maltby, Wicks, and Co. Mr. B. Crewe, architect, Savoy Mansions, Savoy. Quantities by Mr. H. E. Pollard, 5, York-buildings, Adelphi, W.C.:—
T. H. Jackson... £9,361 J. H. Johnson... £8,119
Gray, Hill, and Co... 6,530 Pattinson and Son... 7,962
Beer and Gash... 8,397 Laing... 7,821
H. Knight and Son... 8,240 Thorne... 7,375
W. Johnson and Co... 8,230 Roome... 7,127
Kirk and Randall... 8,200

LONDON.—For the erection of Wesleyan Church in Bermondsey New-road, with shops, &c., adjoining. Mr. Chas. Bell, architect. Quantities by Messrs. C. Stanges and Son:—
W. Downs... £23,583 Gold... £21,040
J. Greenwood... 53,458 J. Smith and Son... 20,090
Howell J. Williams... 23,380 J. Carmichael... 19,894
Kingerlee... 21,990 Coxhead... 19,866
Balaam... 21,543 W. Shepherd... 19,496
Rudd and Son... 21,068 J. Chessum and Son... 16,575

LONDON.—For new receiving-rooms, &c., Latimer-road, W., for Messrs. Eastman and Son. Messrs. Northcroft, Son, and Neighbour, surveyors:—
Mowlem and Co... £3,065 H. Wall and Co... £4,149
Holloway Bros... 4,780 Whitehead and Co... 4,075
Bywaters and Son... 4,486 F. T. Chinchin... 3,995
Godson and Son... 4,427

LONDON.—For erecting national schools, Warwick-road, Kensington, W. Mr. John Butler, architect:—
Dooman and Co... £6,570 F. T. Chinchin... £5,945
General Builders, Ltd. 6,400 G. and F. Kent... 5,920
Spencer, Santo, & Co. 6,184 B. E. Nightingale... 5,585

LONDON.—For alterations, additions, and fittings at the "Black Horse" beer-house, Broadway, Ilford, E., for Mr. S. Leche. Mr. Fred. A. Ashton, architect, 177, Romford-road, Stratford, E.:—

Alterations, &c. Fittings. Total.
A. E. Symes... £240... £228... £1,368
Welsh and Son... 848... 516... 1,314
W. G. Maddison... 786... 492... 1,278
J. and H. Cocks*... 778... 468... 1,246
C. Simmons... 690... 536... 1,226

*Accepted.
LONDON DERRY.—Accepted for the erection of a house, Northland-road, for Miss Scott. Mr. E. J. Toye, architect, Strand, Londonderry:—

Building.—Robert Colhoun, Strand, Derry... £1,040
Plumbing.—James McClean, Little James-street, Derry... 118

MANCHESTER.—For taking down and rebuilding "The Long Vaults," Moston, for the Openshaw Brewery Co. Messrs. C. K. and T. C. Mayor, architects, Dalton-chambers, 41, John Dalton-street, Manchester. Quantities by Mr. H. Stone, King-street, Manchester:—
Wm. Thorp... £2,850 Wm. Shaw... £2,693
F. and E. Haynes... 2,820 Geo. Macfarlane... 2,680
Young, Tinker, and R. Whithill... 2,630
Burgess and Galt... 2,698 Sons, Blackley*... 2,485

*Accepted.
NORBITON.—For additional accommodation at the Royal Cambridge Asylum, for the Trustees:—
Walter Holt and Sons, Croydon... £2,640

PLYMOUTH.—For the erection of chimney, &c., at Prince Rock. Mr. James Paton, Borough Engineer, Plymouth:—
Finch... £2,507 0 0 Dart and Pollard*... £2,370 0
Locking Joint... 2,637 14 7 ham... 2,523 0
Co... 3,888 0 0 Warner, Notting-Skinner... 2,637 14 7

*Withdrawn. *Accepted.
PORTSEA.—For the erection of St. Stephen's Church, Portsea, Portsmouth. Messrs. Mr. Reginald A. Crowley, architect, 22, High-street, Croydon. Quantities by Messrs. E. M. Whitaker and Charles G. Maylard, architects, London, E.C.:—

Amount included north aisle.
Learmouth... £9,130 0... £1,323
W. Potter... 8,706 0... 1,490
Clark and Sons... 8,267 0... 1,330
Stephens, Bastow, & Co., Ltd. 7,998 0... 1,000
J. M. Perkins... 7,577 0... 1,250
J. Cockerell... 7,527 0... 1,200
Light and Co... 7,425 0... 1,264
T. P. Hall... 6,866 10... 1,092

SOUTHAMPTON.—For conversion of No. 3, Upper Moura-place, into business premises, for Messrs. Tyrrell and Green. Mr. Wm. Burrough Hill, architect, Southampton:—
A. Wright & Son... £2,969 0 0 Udall and Co... £2,788 11 2
Jenkins and Sons... 2,964 0 0 Playfair & Toole... 2,716 0 0
H. Cawte... 2,900 0 0 H. Stevens & Co*... 2,687 0 0

[All of Southampton.]
*Accepted subject to modifications.
WINDSOR.—For building new Douglas Stores, Thames-side, Windsor, for Messrs. Neville Reid and Co. Mr. John Geo. Carey, architect, Windsor:—
Bamptide... £4,732 0 Hollis and Sons... £4,452 0
H. Reavell... 4,551 18 W. Goddard & Son*... 4,238 0
Burfoot... 4,512 15 J. Deverill†... 3,832 0

*Accepted. †Too late.

CONTRACTS OPEN.

THE METROPOLITAN ASYLUMS BOARD invite TENDERS for CERTAIN REPAIRS, &c., to CENTRAL STOVE FLUES, at the Northern Fever Hospital, Winchmore Hill, N.

A copy of the specification of the work required may be obtained at the chief Office of the Board, Norfolk House, Norfolk-street, Strand, W.C., where also drawing of the work may be inspected.

Tenders, sealed and endorsed "Tender for Repairs, &c., to Stove Flues, Northern Hospital," must be delivered at the above-mentioned office not later than TEN a.m. on FRIDAY, JULY 8th, 1898.

The Board do not bind themselves to accept the lowest or any Tender.

By order,
T. DUNCOMBE MANN,
June 27th, 1898. Clerk to the Board.

CORPORATION OF LONDON.
PUBLIC HEALTH DEPARTMENT.
TO BUILDERS AND OTHERS.

The Streets Committee of the Corporation of London will meet at the Guildhall, on TUESDAY, JULY 19th, 1898, at HALF-PAST ONE o'clock precisely, to receive TENDERS for the CONSTRUCTION of UNDERGROUND CONVENIENCES in Fenchurch-street, according to plans and specification to be seen at the office of the Engineer to the Corporation, at the Guildhall.

Tenders are to be on the forms supplied at the said office, to be sealed, endorsed "Tender for Underground Conveniences," addressed Town Clerk, Public Health Department, Guildhall, and delivered before HALF-PAST ONE o'clock on the above-mentioned day.

Persons sending in proposals must attend themselves (or by duly authorised agents) at HALF-PAST ONE o'clock, on the said day.

Security will be required for the due performance of the contract.

The Committee do not pledge themselves to accept the lowest or any Tender.
Guildhall, June, 1898. MONCKTON.

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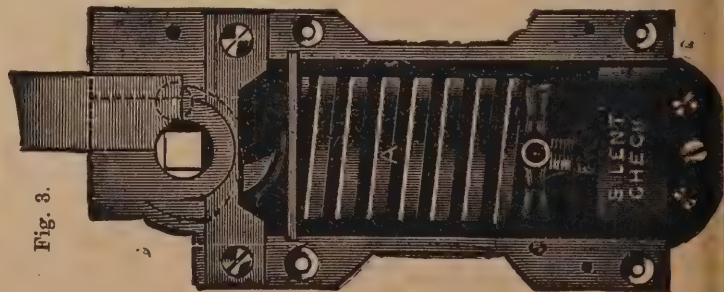
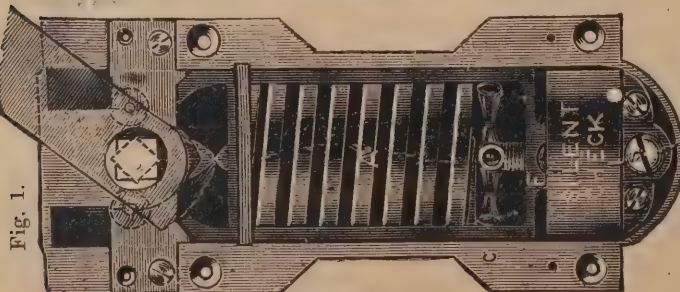
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IMPORTANT ANNOUNCEMENT.

THE SECOND NUMBER OF

Specification

Will be issued on July 15th, 1898.

TWO HUNDRED ADDITIONAL PAGES.

AMONG THE THIRTY SPECIALISTS WHO HAVE KINDLY UNDERTAKEN THE CORRECTION OF
"SPECIFICATION" THE FOLLOWING NAMES WILL BE FOUND:

Prof. Henry Adams, M.I.C.E., M.I.M.E., F.S.I., M.S.A.
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Max Clarke, A.R.I.B.A.
Walter Crane, A.R.W.S.
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Alfred Waterhouse, R.A., & Son, Fellows R.I.B.A.

FOR FURTHER PARTICULARS SEE INSIDE SUPPLEMENT.

The R. A. Show.

IT is not the exhibition at Burlington House, but the Royal Agricultural Show at Birmingham, to which our heading refers. For an agricultural show, the building trades' interest has crept very prominently to the front, and on every hand are exhibits which claim the attention of those who have to do with bricks and mortar equally with those whose interest is in ploughshares and corn-fields. To some of these specialities we referred in our last issue; to others we must refer this week:—

MESSRS. OATES AND GREEN, HALIFAX.

A stand of brown ware in an open space, with goods that are familiar enough to all frequenters of "Health" or "Building" exhibitions, is occupied by Messrs. Oates and Green. Their speciality at the "Royal" is brown salt glazed sanitary mangers, which they already supply to all the principal railway companies. There is also to be seen here an excellent lavatory basin, which is an article that, so far, has not been the object of much attention for this firm, but which they can evidently produce as well as anybody.

MR. ANDREW POTTER, WOLVERHAMPTON.

Ropes, twines, tarpaulins, roofing, felt, and tent goods fill a big stand taken by Mr. Potter, whose business, it may be noted, has developed of late to such a degree that new premises in Wolverhampton are being built to take the place of the old and scarcely convenient ones in which his goods have been displayed for many years.

THE BLACKMAN VENTILATING COMPANY LIMITED.

The well-known fans of this Company are in operation at a stand that received careful attention from the visitors. The drying of malt and various other processes in which rapid circulation of air is required were thoroughly explained from the Company's point of view by their representative, and the attention given by agriculturists to the application of the fans to the drying of chaff, &c., doubtless resulted in good business.

MESSRS. WORRALL AND COMPANY, LIVERPOOL.

This firm showed, among other exhibits, a patent collapsible iron gate, and a variety of art metal work. The neat circular given away at this firm's stand merits a word of compliment. It was remarkably effective, and to the point.

THE EXPANDED METAL COMPANY.

The employment of expanded metal in the construction of fireproof buildings was shown at a large stand in the implement yard, and also the use of the metal for such specially agricultural or rather rural work as tree guards and fences was illustrated by a well-selected exhibit.

MESSRS. RICHARDSON AND CO., DARLINGTON.

A large conservatory shown by this firm was a very welcome shelter from some of the showers that were by no means infrequent during the greater part of the Show. The traveller by the East Coast route to Scotland will know the Darlington sign of the firm well, standing out as it does so prominently just at the south end of the station on his right going north; but the Show Stand was even more prominent, if possible, by reason of a big sky-sign opposite the Horse Ring, in a singularly effective position. The conservatory contained specimens of the firm's heating apparatus, as well as being in itself illustrative of the main part of the Darlington business.

MESSRS. R. J. HARRIS AND SON, RUGELEY.

Garden seats were the main feature of this firm's stand, and one very neat and comfortable specimen at a pound took the public fancy considerably. There were also other

specimens at various rates of cost, and evidently Messrs. Harris are to be reckoned with in this department of ironwork.

MESSRS. THOMAS BRADFORD AND CO., MANCHESTER.

The churns and other dairy implements in use at the Show are for the most part the manufacture of this firm, but there are other specialities as well as dairy machinery. In the laundry the firm is undoubtedly *facile princeps*, and the Show is not without evidence of this fact. The handbook given away at the stand is full of illustrations of every sort of washing gear and drying apparatus, and hotel proprietors will be interested in a mechanical boot-cleaner, which has hitherto seemed to be the unattainable in machinery. Machines for the cleaning of boots are legion, but the successful polishing of the boot is quite another affair, and it is to be hoped that this of Messrs. Bradford will be found to accomplish the desired object.

AN ENGINEERING EXCURSION.

A VISIT TO THE GREAT WHEEL.

AN extremely interesting visit was made by a party of the members of the Society of Engineers a few days ago to the works of the Gas Light and Coke Company at Fulham, and the Gigantic Wheel at the Earl's Court Exhibition. Among those present were:—Mr. W. Worby Beaumont, president; Mr. H. Adams, past president; Messrs. J. Patten Barber, J. Bernays, G. Burt, D. B. Butler, Percy Griffith, R. St. George Moore, M. Wilson, Members of Council; and Mr. G. A. Pryce Cuxson, secretary.

DESCRIPTION OF THE GAS WORKS.

The coal received, amounting to 130,000 tons per year, is unloaded by Hone's patent single chain grabs (capacity 1 ton, each lifting 45 tons per hour), and deposited into bunkers, from which it is distributed to the several retort houses by small wagons. When storing coal in the open it falls down shoots from the bunkers into a conveyor of the push plate pattern, and is carried along to the storage ground, where it is dropped from a shoot at the end of the conveyor into small wagons, which are run and tipped so as to form a heap of an average depth of 10ft. to 12ft. The total coal storage is 30,000 tons—14,000 in retort houses and 16,000 in the open. The retort houses, of which there are six, have a capacity of 9,000,000 cubic feet per 24 hours. They contain 760 retorts 20ft. long, and are heated by generator furnaces, which require about 20 per cent. of the total make of coke for fuel, leaving 80 per cent. for sale. The

HEAT OF THE RETORTS

is about 2100 degrees Fahrenheit, and on the average 10,000 cubic feet of gas are distilled from one ton of coal, each retort producing about 12,000 cubic feet of gas per twenty-four hours. The exhausters—rotary pumps—are used for the purpose of exhausting the gas from the retorts, and forcing it through the purifiers and other apparatus into the gas-holders. The condensers—stacks of pipes through which the gas flows up and down—are for the purpose of reducing the temperature to about that of the atmosphere, and of removing from the gas all tarry or solid particles. The scrubbers—tall towers in which are placed beds of tightly packed coke or boards on grids, and down which ammoniacal liquor or water is sprayed—are for the removal of the ammonia from the gas, which travels in an opposite direction to the water. A considerable proportion of sulphuretted hydrogen and carbonic acid is also removed in the scrubbers. The purifiers are rectangular boxes, with lids sealed by water lutes, in which are placed the purifying materials in layers, usually six, and of a depth of about 4in. The impurities in the gas when it arrives at the purifiers are carbonic acid, sulphur existing as carbon bisulphide, and sulphuretted hydrogen, which are eliminated by slaked lime, oxide of iron, and weldon mud,

the last two materials, however, being only used for the extraction of the sulphuretted hydrogen. The gas, after leaving the purifiers, passes through the station meters, where it is registered, and thence into the gasholders.

DESCRIPTION OF THE GIGANTIC WHEEL.

The Great Wheel at Earl's Court, although entirely of English manufacture, is more or less an American innovation. Mr. W. B. Basset prepared the drawings, with the aid of Mr. J. Webster, Mem.Inst.C.E., Consulting Engineer to the Company. The Gigantic Wheel and Recreation Towers Company was formed, and in March, 1894, the work commenced. The foundations consist of eight solid cubes of concrete, each weighing over 250 tons, with steel bolts 16ft. long bedded into them, and to which are attached the bases of the eight columns. These columns are each 4ft. square, built of steel plates with internal diaphragms. The first and second lengths of these columns were hoisted into place by a 96ft. pair of sheer legs. To erect the upper lengths of the columns, a wooden stage was built across the gap through which the wheel now revolves, and on it two Scotch cranes were set up, one to work on each side. About the middle of July the columns were completed, and the great axle, built of lin. steel plates and 9in. steel girders bent into circular form, was brought from Messrs. Maudslay's works at East Greenwich to Earl's Court.

TO HOIST IT INTO PLACE

The wooden bridge was used, with a strong trolley fitted on it to run on rails. With tackles hung from this trolley, the bearings, weighing 11 tons each, and the axle, weighing 57 tons, were hoisted. The first quadrant of ten spokes was built in the following manner. A spoke was hung from the axle, the length being carefully adjusted to gauge, and the portions of the periphery, or outer ring, were attached. Two powerful tackles, capable of exerting together a pull of 120 tons, were fixed to an anchor-post, and towards this anchor the spoke was hauled out of the way when finished. Another spoke was then hung in its place, and connected to its periphery girders, and in this manner the ten were hung and adjusted until the quadrant was held so that the last spoke erected was vertical, when the steam-winch actuating the tackle could pull no more. The second quadrant was built from a scaffold 150ft. high, the first and second quadrants balanced each other, and all the strain was thus removed from the anchor. For the third quadrant, a strut, which weighed alone over 60 tons, was securely fixed in the first quadrant, the tackles were again brought into play. The fourth quadrant was erected by building the inner periphery girder, by aid of a hanging scaffold, to bridge the distance between the first and third quadrants, and from it the outer periphery and spokes were erected. The last two bolts in the outer peripheries were driven by Mrs. Walter Basset at a height of 280ft. on April 26th.

SINCE THE COMPLETION

of the Earl's Court Wheel, Mr. Basset has, with the help of his two assistants, Messrs. C. F. Hitchens and H. C. Booth, Assoc. Mem. Inst. C.E., designed and erected a gigantic wheel at Blackpool, and another at Vienna, and is now engaged on the erection of one in Paris larger even than the Earl's Court Wheel. A comparison between the methods adopted both in the design and erection show the result of experience, combined with careful study. The weight of steel used in the Earl's Court Wheel, amounting to 1200 tons, has been reduced in the Paris Wheel to 783 tons, although the Paris Wheel is the greater, without in any way jeopardising the safety of the public. The axle, instead of being of boiler plates 7ft. in diameter, is a solid forging, 26in. in diameter, weighing 32 tons. The cars are hung on cantilevers, instead of between the periphery girders, giving a lighter and more graceful appearance. The erection is effected by means of two Scotch steam cranes with jibs 100ft. long, on stages 250ft. high. These are believed to be the highest crane stages ever used.

Builders' Notes.

THE Great Northern Railway announces the opening of the first portion of its new Deansgate goods depôt in the City of Manchester. The depôt occupies a most central and commanding site in the heart of the city facing Deansgate, and adjoins the central passenger station of the Cheshire Lines Committee, of which the Great Northern are also joint owners. Pending the completion of the warehouses now in course of erection, convenient warehouse accommodation will be provided in proximity to the new depôt.

THE Waterloo and City Railway will be formally opened next Monday. Sir Francis Marindin has already made an unofficial inspection of the permanent way, and at his suggestion the treads of the new staircases giving access to the City Station—one at the angle of the premises of Messrs. Mappin and Webb, in the Poultry, the other in Walbrook, fronting the Mansion House—have been increased in width so as to comply with the Board of Trade requirements. These staircases will afford ingress and egress to the City Station pending the approaching completion of the public subway below the crowded crossing at the Mansion House, the Bank of England, and the Royal Exchange, and as soon as the subway is ready for use a third means of approach to the new railway will be provided. It is hoped that the line will be available for traffic on the day following the opening ceremony.

MR. JUSTICE KEKEWICH in the Chancery Division last Wednesday heard the case of The Christian Herald Company Limited v. The Co-operative Printing Society Limited, an action by the plaintiffs for an injunction to restrain the defendants from continuing the erection of a building which it was alleged interfered with the access of light to their premises in Tudor Street, City. The plaintiffs' case was that the site of the defendants' present building was formerly vacant land, having upon it a boundary wall about 12ft. high. The defendants' building was 56ft. high. The plaintiffs said that they did not object to the defendants' building being erected to a height of 30ft., but they asked for a mandatory injunction compelling the defendants to reduce their building to that height. The main defence was a denial that there had been any diminution of the plaintiffs' light, and an assertion that the plaintiffs had not suffered damage by the action of the defendants.—The judge, who went and viewed the place, said that he had no alternative but to grant a mandatory injunction calling upon the defendants to reduce the height of their building to 30ft., the work to be accomplished by the 31st of October. If the parties did not come to terms the question of any damages would be referred to the Official Referee, who would inspect the premises. The defendants must pay the costs of the action.

THE opening of the new line of railway between North Walsham and Mundesley-on-Sea marks the beginning of a series of railway extensions which will be carried out by a joint committee of the Great Eastern, the Great Northern, and the Midland Railway Companies. The line from North Walsham forms a junction with the Great Eastern Company's Norwich and Cromer line and the Midland and Great Northern joint committee's Lynn and Yarmouth line, and extends a distance of 5½ miles to Mundesley-on-Sea. The line will be a single one, with only one intermediate station, to be known as Paston and Knapton. The second section, yet to be constructed, will be a new line between Mundesley and Cromer, a distance of eight miles along the coast, and passing *en route* Trimmingham, Sidestrand, and Overstrand, each of which villages will be supplied with a railway station. The third section will proceed in the opposite direction from Mundesley to Happisburgh, or Hazeboro, serving also the villages of Bacton and Walcott. A further important section of the

same scheme is a new direct line, ten miles in length, between Lowestoft and Yarmouth, which will also serve the intermediate villages of Gorleston, Hopton, and Corton. In this way no fewer than ten sea-side resorts will be made more accessible, while opportunities will be offered for the creation of others, and greater facilities given for communication between the towns of Yarmouth and Lowestoft. According to the train service which has been arranged, Mundesley, the terminus of the first section, will be about three hours from London.

FOR some weeks past the Bristol Master Builders' Association have been considering a demand made by the employes in various branches of the building trades for an advance of wages and alteration of the working rules. Meetings have been held and negotiations have also been conducted by correspondence, until so far as the federated trades are concerned the points in dispute have been narrowed to two—viz., the date at which the advance shall come into operation, and the rule with reference to "walking time." The last communication from the federated trades, dated June 28, contained a suggestion to refer the two points to arbitration. A meeting of the Master Builders' Association was held last week, and the result was that a letter was addressed to the Federated Trades by the secretary (Mr. H. J. Spear) containing the following: "As there does not appear to be any possibility of arranging the two points at variance between this association and the federated trades, I am desired to inform you that the members of this association are prepared to act upon your suggestion to refer those points to arbitration, and that such arbitration shall be through the medium of the Board of Trade under the provisions of the Conciliation Act of 1896." A copy of the letter has been sent to the Bricklayers' Society and to Mr. J. Curle, secretary of the Bristol Trades Council. We are also informed that all the federated trades, with the exception of the masons, have communicated with the Master Builders' Association, to the effect that they will agree to the points being submitted to arbitration, and that they will continue work until the award of the Board of Trade arbitrator is given.

MR. JOHN CROWLE, owner of the De Vere Hotel, Kensington Road, was summoned on Friday week, at the West London Police Court, by the London County Council, for having erected a structure beyond the general line of buildings of Kensington Road. Mr. Chilvers, from the Solicitor's Department, represented the Council, and stated the structure complained of was a covered way 12ft. high and 8ft. wide, erected at the entrance to the De Vere Hotel, which defendant erected after the Council had intimated that they objected to it. Section 22 of the London Building Act, 1894, provides that no structure should be erected beyond the general line of buildings without the Council's consent, and Mr. Chilvers referred to the fact that these premises had formed the subject of considerable legal proceedings some years ago in the case of Burlow and the Vestry of Kensington, which went from that Court to the House of Lords.—Mr. Bellevue, for the defence, contended that the covered way was a mere hood and not a structure within the meaning of the section under which the summons was issued, also that the certificate was bad, as the architect had drawn several lines and not a line of buildings, and he further contended that the magistrate could not convict his client, as no order had been made in accordance with Section 200, Sub-section 33, which was necessary before a conviction be obtained or any penalty imposed.—The magistrate, Mr. Rose, in giving his decision, stated the covered way was certainly an improvement to the hoarding which originally existed, but he was of opinion that it was a structure which required the consent of the Council for its erection, and that he had power to impose a penalty, and he should fine the defendant 10s and order him to pay £1 3s. for costs.

Surveying and Sanitary Notes.

THE Grange-over-Sands Urban Council has adopted plans, and is making application to the Local Government Board for powers to borrow £10,000 to carry out certain improvements which have been under consideration for three and a half years. It is proposed that the sewage which now drains upon the foreshore at various points shall be collected and carried beyond the town along the railway embankment, outside which will be erected a promenade. The new sea wall will reclaim five and three-quarter acres of land, which will probably be used as a recreation ground.

THE Sanitary Committee of Stoke Newington have played their ratepayers a practical joke. Having to re-arrange a part of the drainage system, these merry wags lately erected a ventilator in one of the streets, but before the drains had been interfered with at all. They then awaited results. In a day or two's time letters came pouring in complaining of the most objectionable effluvium which issued from the ventilator, and when the storm was at its full height the joke was explained. The ratepayers were still indignant, however; they had smelt a rat before, but they draw the line at smelling an effluvium.

THE Corporation of London is said to have been unfortunate in its attempt to oust the New River Company from the supply of certain artisans' dwellings in Houndsditch. The Corporation sank a well, at a cost of some £8000, and the current expenses of the supply are about £180 a year. The Company offered to do the whole thing for about £80 a year, with, of course, no outlay of capital on the part of the Corporation. It is therefore a serious loss all round. Wide and sweeping conclusions will probably be drawn from the isolated fact, but they may easily be erroneous. The city had to create a plant; the Company, no doubt, had its plant on the ground. The annual cost of the Corporation service would probably supply a much larger area at but a slight increase. If the Corporation has paid too much in this instance, the companies unquestionably charge too much at all times.

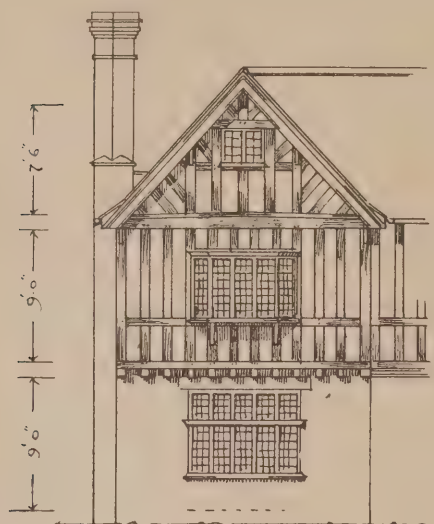
THE Recorder, Sir Charles Hall, Q.C., M.P., and a special jury sat at the Guildhall last Wednesday to hear the case of "The Trustees of the London Parochial Charities v. the Corporation of the City of London," a claim for compensation in respect of the freehold interest in premises known as No. 4a, Cheapside, which are required for the purposes of the widening of the west end of Cheapside. Mr. Edward Boyle, Q.C., and Mr. Reginald Neville appeared for the claimants; Sir William Marriott, Q.C., and Mr. Rose-Innes represented the Corporation. The property in question was let at a ground rent of £40 per annum for sixteen years from Midsummer, 1898, and it was agreed, during the hearing, to be taken on the 3 per cent. tables, £500. It was admitted that the property would be worth about £500 per annum at the expiration of the existing lease in 1914, and the question for the jury was the proper basis upon which to capitalise that reversionary value. For the claimants it was contended by Mr. Daniel Watney (past president of the Surveyors' Institution) and Mr. G. A. Wilkinson that the sum of £500 per annum receivable after the year 1914 should be valued on the 4 per cent. tables (13½ years' purchase), or £6700, which, with the customary addition of 10 per cent. for compulsory sale, brought the claim to a total of £7924.—On behalf of the Corporation Mr. Robert Vigers (president of the Surveyors' Institution) and Mr. Alexander Rose Stenning gave evidence to the effect that the reversionary rental of £500 in 1914 should be capitalised on the 5 per cent. tables (9½ years' purchase), £4255, showing a total of £5626, including the usual 10 per cent.—The jury awarded the claimants the sum of £6850.

DESIGN & DETAIL OF DOMESTIC BUILDING.

III.—A HALF-TIMBERED HOUSE.

By JOHN E. NEWBERRY, A.R.I.B.A.

TO avoid unnecessary recapitulation, I must refer my readers to the first article of this series, which treats of a cottage in red brick and tile. The principles therein laid down will equally apply for a half-timbered house, the subject that is now under consideration. Especially I would refer to my



KEY ELEVATION

notes on roofs, height of rooms, and details of windows and glazing.

Successful design in what is so essentially a mediæval manner is only to be attained by careful study of old work. Actual measurement of good ancient examples will teach more than can possibly be taught by writing, and the student should not only record the dimensions and examine the construction, but also endeavour to analyse the reasons and methods of the designer. Much of the charm of old half-timber work is owing to the effects of time, the picturesque irregularity of the composition, and to the solidity and texture of the timber framing. Any attempt at imitation is bound to fail, and if we cannot use good honest timber, and plenty of it, we had better adopt some cheaper form of construction. Failures in design are most frequently owing to want of width in the timbering, and too great a space being left between the timbers.

MATERIALS.—English oak is undoubtedly the best material for external timbering—it should be left roughly planed with a jack-plane and on no account oiled or varnished, but just allowed to bleach as most of the old work has done. Well-seasoned fir timber is a good substitute for oak, and may be treated with two coats of Stockholm tar to preserve it. A roof covering of slates, preferably of the green variety from Westmoreland, looks charming and is most durable, but tiles are more usual in the South of England. It would appear almost unnecessary to advise against the use of slates and tiles in the same building. The writer saw this combination used a few days ago on a church, the nave roof being tiled and the aisle roofs slated. The effect was by no means happy.

Three methods of half-timber construction are shown on the details.

TIMBER AND PLASTER.—The practical difficulty in modern half-timber work is to keep your house thoroughly dry, warm, and weather-tight. I do not think this can be effected without three separate layers of plaster between the timbers. Two methods of construction are shown, which I will refer to as the solid method and the modern method. In the latter system the greater part

of the upright and diagonal pieces are only 2½ in. thick, with 2 in. by 2½ in. fillets nailed to them to take the inside plastering. All angle and window posts, heads, and sills are 5 in. thick, as shown on the section of oriel window. Fillets, 1 in. by 1½ in. square, are nailed to the sides of uprights to take plaster laths, and similar fillets are nailed at the top of all horizontal and diagonal timbers. The timbers are grooved all round for plaster on the external face, excepting the tops of horizontal and diagonal pieces, which are rebated only for plaster, thus allowing moisture to escape instead of soaking into the groove.

OAK PINS.—Whether the timber framing is constructed of oak or fir, it must be pinned together with oak pins. These may either project an inch, or else be roughly cut off flush with a hand-saw. They may be ¾ in. to 1 in. in diameter.

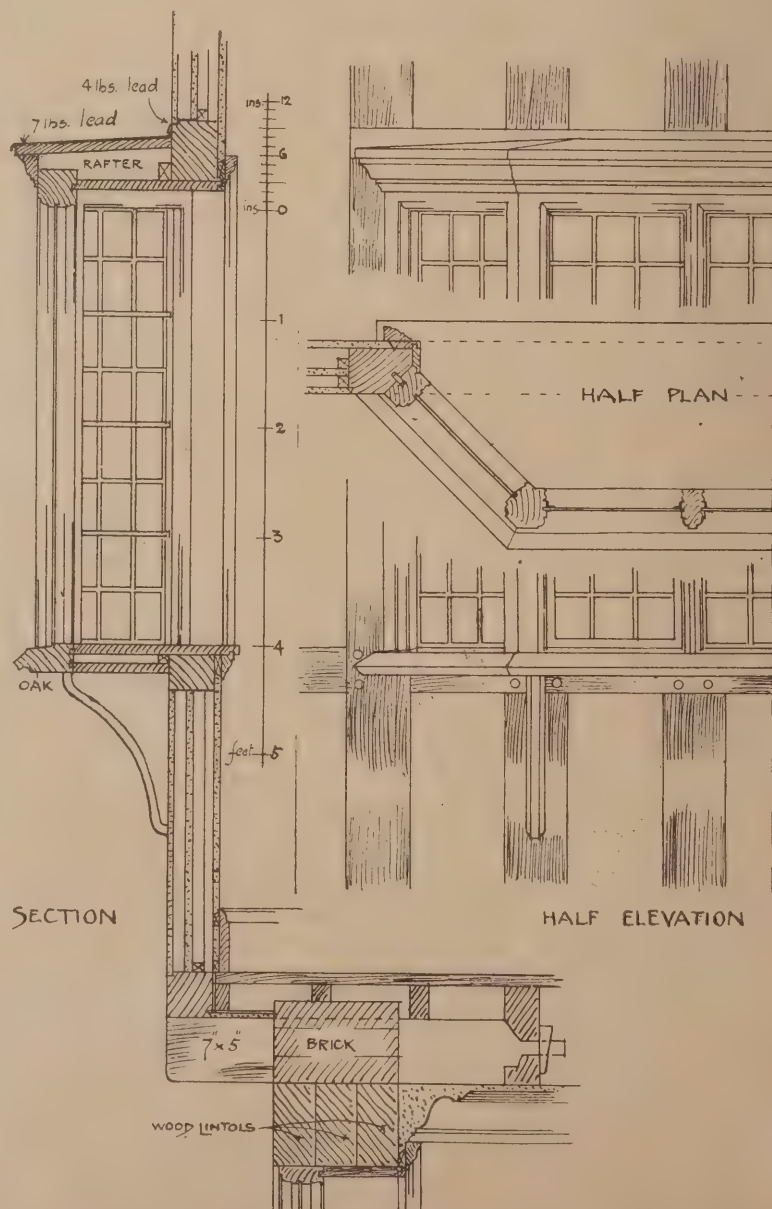
PLASTERING.—The middle layer of plastering is finished before the outer face is commenced, and consists of lathing and two coats of plaster. A good method of finishing the external face between the timbers is to coat the laths with a mixture of plaster and Portland cement, mixed in equal proportions, and at least ¾ in. thick: this should be well squeezed into the grooves of timbers and finished with a coat of rough-cast composed of lime and coarse sand and gravel, which will give a rich creamy tint. The last coat must be finished flush with the timbers.

TIMBER AND BRICK.—Where half brick filling-in is used, I would insist on oak being employed for the timbering. A plan and section of such a method of construction is shown. The porous nature of red bricks renders it

probable that driving rain would penetrate through the half brick wall; in order to get rid of any moisture that may come in, the vertical timbers are throated and the tops of all horizontal pieces are covered with a lead flashing turned up over fillet and copper nailed. Thin red bricks, 2 in. in thickness, are most suitable for filling-in, and should be rendered on the inside. The backs of timbers are shown to be battened for plastering and intermediate upright fillets are intended to be fixed against brickwork where required, not less than 14 in. apart, to carry the plaster laths. Many fanciful patterns for arranging the brick filling-in may be found in old work, such as diagonal, herring-bone wise, or chess-board fashion.

WINDOWS.—Casement windows I consider a necessity in half-timber work. They should consist of moulded wood mullions with a simple form of iron casement and frame hung in some of the lights. They would naturally be filled with quarry glazing. The external face of the window frame should be kept back ½ in. from the face of timber work, as already described for wood windows in brickwork. The post should be rebated to receive window frame, and sill pieces may be cut out for window-sills in order to avoid breaking the horizontal line.

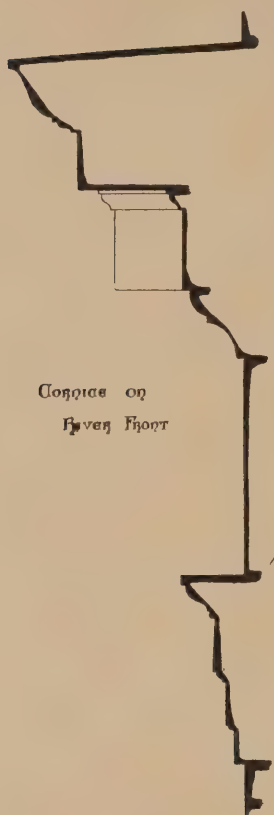
A projecting window is shown on the key elevation, and in detail elsewhere. Two or three of the lights are intended to have iron casements fixed in them. The timber framing overhangs some 12 in. in front of the lower brick wall, and is carried on 7 in. by 5 in. joists, which are tusk-tenoned into a trimming-joist. The upper part should be well bolted back to brickwork. Care must be taken to render the



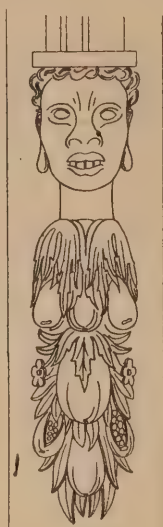
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THE LIBRARY AT LAMBETH PALACE.

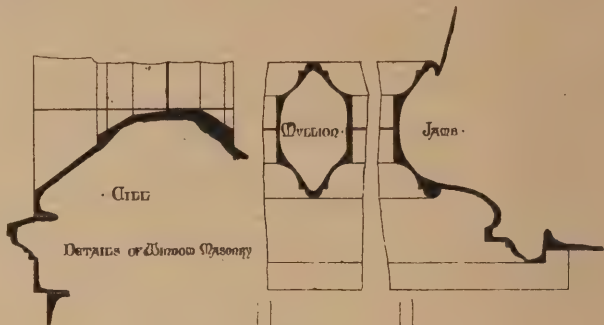
DETAILS TO QUARTER FULL SIZE



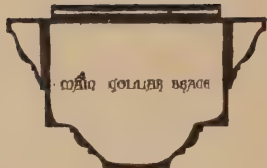
Corbel on
Rafter Foot



Corbel on Side-post
or Rafter



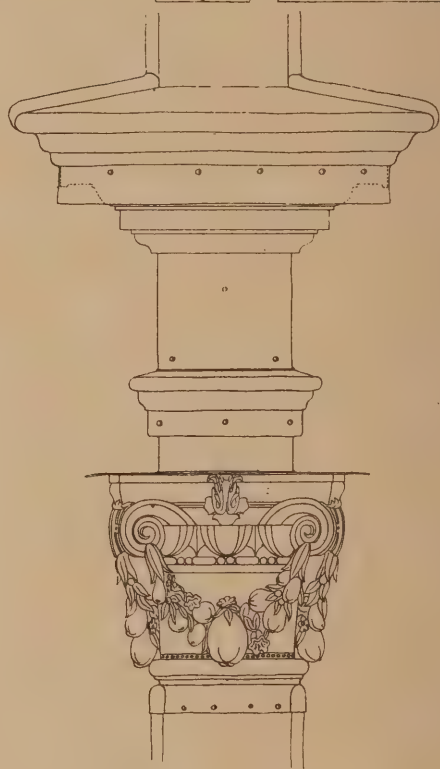
DETAILS OF WINDOW MASONRY



Corbel to Main
Truss of Roof



Corbel to Main
Truss of Roof



Cap and Entablature on
Lower stage of Lantern

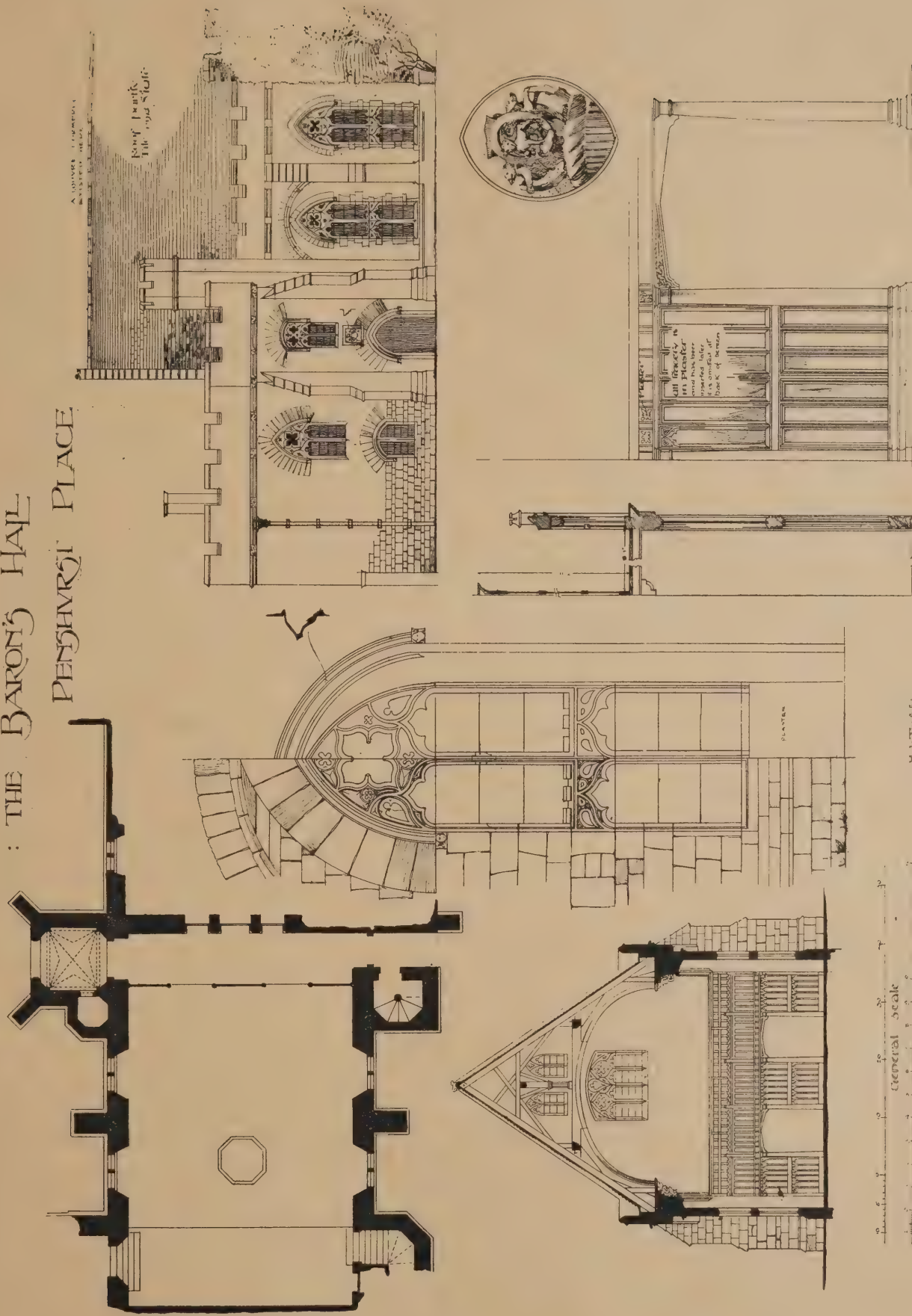


Ornament on Ashpier Piece



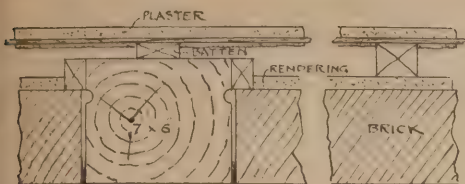
DRAWN BY R. T. BARKER.

: THE BARON'S HALL PENGHURST PLACE

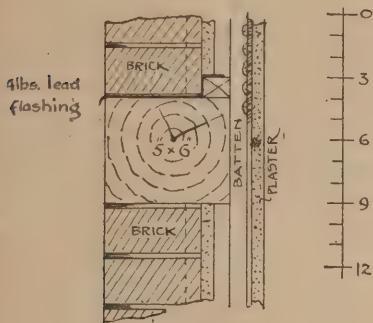


PENGHURST PLACE: THE BARON'S HALL. DRAWN BY H. INIGO TRIGGS.

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PLAN



SECTION

plastersoffit between joists thoroughly draught-proof. These overhanging upper stories are delightful features in old examples, and many are the suggestions that may be obtained from them.

BARGE-BOARDS are generally not less than 2in. thick, and, if of deal, should be plain and moulded only on the lower edge. A moulded fillet, some 3in. by 2in., is required to hide the ends of the tile laths and fit close under the single course of flat tiles mentioned in article No. I. A barge-board, such as is shown on the key elevation, might project 10in. from the face of timber and should be carried by short purlins 4in. by 3in., supported by shaped brackets. The soffit might show the laths and tiles or slates, as described for the eaves in article No. I. Ornamental barge-boards are very difficult to design, and are features that often run to seed on speculating builders' villas. The modern architect, with such examples before him, does well to keep them plain moulded only. There are, however, many old and beautiful examples of elaborately carved oak barge-boards scattered about the country, which show how they may be properly treated.

EXTERNAL PAINTING should be confined to joiners' work, as distinguished from that of the carpenter. In a half-timber and plaster house with tiled roof I would paint windows, barge-boards, etc., green, always supposing them not to be oak. Fir timber framing, as previously mentioned, should have two coats of Stockholm tar applied to it, which will produce a rich brown colour. A stone and slate house with tarred timbers might have the joiners' work finished in some shade of red.

(To be continued.)

THE new inclined retort houses at Meadow Lane Gasworks, Leeds, will be ready for opening at the end of next month.

WE are compelled, through space considerations, to withhold the concluding half of Mr. George T. Brown's paper on "Building Stones and Quarries of Northumberland and Durham." It will appear in our next issue.

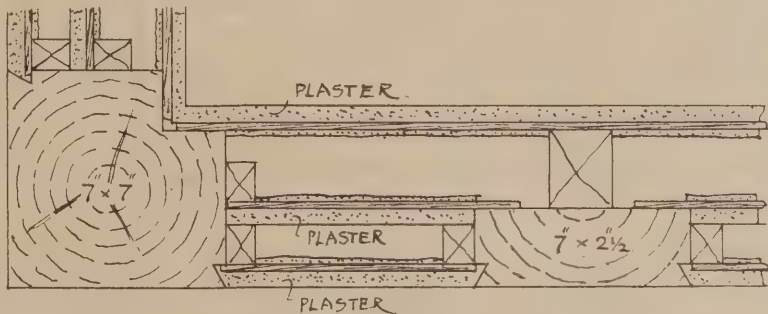
THE excavations for the underground lavatory, which the Birmingham Public Works Committee intend to construct in that part of High Street commonly known as the Bull Ring, is being commenced. Similar operations have been commenced in the Old Square.

Trade and Craft.

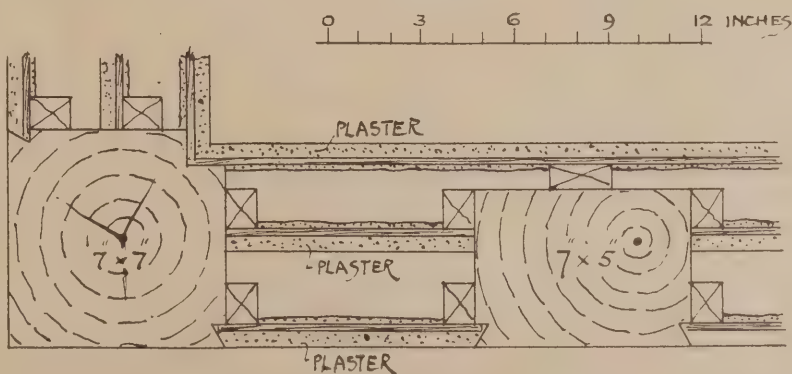
THE FARNLEY IRON COMPANY.

Exceptionally neat in design is the "Catalogue of Glazed Bricks, Porcelain Baths, and other Glazed and Sanitary Goods made at Leeds from Farnley Fire-Clay," a copy of which has been sent to us by the Farnley Iron Company. No less than twenty-seven separate items are to be found in the table of contents, and although in the very nature of things some of the products of the works are not in any special sense artistic to look upon, the manner in which they are here set forth leaves nothing to be desired, while those that are really in themselves picturesque receive the fullest justice. It is, we learn from the introduction of the book, some fifty-four years since the works were first opened for the purpose of working the minerals found in the estate of about two thousand acres, and, whether it be in coal, or iron, or clay (with which we are here chiefly concerned), it must be admitted that the works have amply justified themselves in the years that have passed since the opening. The first pages of the catalogue are devoted to the famous Farnley glazed bricks, made from the Farnley clay, which is peculiarly fitted for the manufacture of these goods, as while it allows the production of an enamelled surface impervious to the weather, it at the same time gives a hard building brick, with a high resistance to crushing strain. For the subway work that has become so great a feature in the large towns of this country, these bricks are singularly suitable, and preferable to tiles, which, while good externally, are less strong structurally. The Farnley Iron Company are exporters as well as manufacturers, and their glazed bricks are known in many a town far enough from the British Isles. In white, and also in various colours,

the bricks are adaptable to every variety of work, and a coloured page is full of suggestion for the artistic use of this material. About a dozen pages are devoted to the illustration of designs for shaped and moulded bricks, and then the catalogue passes to the porcelain baths, referring on the way to the facing tiles salt-glazed bricks. We quote from the book upon the use of this material for baths as follows:—"Besides the capacity for holding hot and cold water, a bath should have a surface smooth and pleasant to the touch, impervious to acids and alkalis, and that can easily be kept clean. Such qualities are, for instance, found in toilet basins of earthenware or china; basins made of wood, tin, copper, or enamelled iron being only used where cheapness is an important consideration. Such inferior material; were used for baths only, because the latter are too large to be made of earthenware or china; and as the enamel on iron baths generally breaks off and exposes a rusty metal underneath. When fireclay, as treated at Farnley, was found strong enough to endure all the processes of manufacture, including the intense heat of the kiln, iron and other materials at once became obsolete for the best work. Even baths carved out of solid marble and polished are found to become greasy when exposed to the action of soapy water. The superiority of the fireclay baths, with their porcelain surface, is confirmed by the experience of chemical manufacturers who use them for the storage of acids and other corrosive liquids, which would destroy any of the materials of which baths were formerly made." Several pages of illustrations show the Farnley baths and other sanitary ware in every variety of pattern. A reference to the Company's iron completes one of the most useful trade catalogues we have seen for many a day. The London showrooms for these goods are at 77, Queen Victoria Street, E.C.



PLAN OF A MODERN METHOD



PLAN OF THE SOLID METHOD

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
July 9	BUILDINGS—		
" 9	Abertillery—Twenty-eight Cottages	Gas and Water Company	Brynawel Mining Offices, Aberdare.
" 9	Canterbury—Gasworks		Gas Company's Offices, 39, Castle-street, Canterbury.
" 9	Woolston—Church House		Colson, Farrow, and Nisbett, 45, Jewry-street, Winchester.
" 9	Bury St. Edmunds—Chapel	Committee	T. Lingoe, Union House, Bury St. Edmunds.
" 10	Armagh—Dispensary	Guardians	W. Calvert, Workhouse, Armagh.
" 11	Tiverton—Hospital	Hospital Board	J. Siddalls, Tiverton.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
July 11	Birkenhead—Hospital	Committee	E. Kirby, 5, Cook-street, Liverpool.
" 11	Dromore—Cathedral		H. Hobart, Dromore, Co. Down.
" 11	Hinchelsea—Bridge	Rural District Council	T. J. Frigg, Gosport-street, Lymington.
" 11	Grangemouth—Cottage		G. Deas Page, Old Glebe-chambers, Falkirk.
" 11	London, N.—Fire Engine Station	Hornsey Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
" 11	Cupar Angus, N.B.—Farmhouse		Hope and Co., 119, Princes-street, Edinburgh.
" 11	Aberdeen—Alterations to Church		J. Rust, 224, Union-street, Aberdeen.
" 12	Halifax—Boiler-houses, &c.	City Council	Horsfall and Son, 22, Commercial-street, Halifax.
" 12	Huddersfield—Hospital	Lumbey, Son, and Wood, Limited	F. C. Lloyd, Town Hall, Huddersfield.
" 12	Shotley Bridge—Cottages	Corporation	W. Liston Newcombe, 89, Pilgrim-street, Newcastle.
" 12	Clifton Hill—Offices	Guardians Gateshead Union	H. W. Wills, 42, Castle Bailey-street, Swansea.
" 14	Limehouse—Repairs to Town Hall, &c.	Swansea Union	Town Hall, Limehouse, E.
" 14	Abercynon—Twenty-four Houses	Vestry	A. C. Evans, Post Office-chambers, Pontypridd.
" 14	London, S.W.—Destructors	Mountain Ash Navigation Bldg. Club	A. and C. Harston, 15, Leadenhall-street, E.C.
" 14	Stokesley—Bridge	Metropolitan Asylums Board	W. H. Dixon, Kirby-in-Cleveland.
" 14	Rochester—Schools	Rural District Council	G. E. Bond, High-street, Rochester.
" 15	Goathland—Villa	School Board	E. H. Swales, 5, Flowergate, Whitby.
" 15	Bradwell—Coastguard Building		Director, Works Department, Admiralty, W.C.
" 16	Moss Side—Schools	School Board	Potts, Sons and Pickup, Victoria-buildings, Manchester.
" 16	Salisbury—Infirmary		Harding and Son, 58, High-street, Salisbury.
" 17	Arlecdon—Schools	School Board	J. S. Moffat, 53, Church-street, Whitehaven.
" 18	Belfast—Church		W. J. Fennell, Chichester-street, Belfast.
" 18	Abingdon—Three Houses	Governors of Christ's Hospital	J. G. T. West, The Knowle, Abingdon.
" 18	Shepton Mallet—School	Governors of Grammar School	A. E. Nalder, Shepton Mallet.
" 19	Hendrefrgan Cottage	Grat Western Railway Co.	Engineer, Newport Station.
" 19	Swindon Sorting Room	Great Western Railway Co.	Stationmaster, Swindon Station.
" 20	Scunthorpe—Chapel		J. N. Dossan, 2, Manor-street, Hull.
" 23	Colne—Schools Library	Corporation	Woodhouse and Willoughby, 100, King-street, Manchester.
" 24	Belem, Para, Brazil—Slaughter-house and Yard, &c.	Municipality	Commercial Department, Foreign Office, S.W.
" 26	West Ham—Twenty-nine Houses	County Borough	L. Angel, Town Hall, Stratford, E.
" 26	Kingston—Disinfecting Chamber	Union	W. H. Hope, Portsmouth-road, Kingston-on-Thames.
No date.	Alston—Bank	Carlisle and Cumberland Banking Co.	Johnstone Brothers, 39, Lowther-street, Carlisle.
"	Bradford—Warehouses		F. Holland, 11, Parkinson's-chbrs., Hustlergate, Bradford.
"	Brentwood—Additions to Sunday School		T. W. White, Hazlewood, Brentwood.
"	Cullingworth—House		Judson and Moore, Keighley.
"	Darlington—Brick Kiln	Town Council	J. W. Watson, Central Buildings, Darlington.
"	Keighley—Closets	Committee of Managers	W. C. Haller, Municipal Offices, Low Bridge, Keighley.
"	Newport—Schools		J. R. Veal and Son, Wolverhampton.
"	Whitehead—Three Houses		Russell and Lockwood, 16, Waring-street, Belfast.
"	Carrickmacross		H. Higginson, Carlisle.
ENGINEERING—			
July 10	Stratford-on-Avon—Reservoir, &c.	Rural District Council	J. E. Willcox, Union-chambers, Birmingham.
" 11	Belfast—Crane	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
" 12	London, E.—Boilers, &c.	Shoreditch Vestry	Kincaid, Waller, & Manville, 28, Gt. George-st., Westminster.
" 13	Llanely—Dredger	Llanely Harbour and Bury Navigation.	Superintendent, Llanely Harbour.
" 13	Abergwyu—Filter Tank	Urban District Council	G. F. Lambert, Bridgend.
" 15	Llanely—Dock Gates	Commissioners	Sir A. M. Rendel and Son, 8, Great George-st., Westminster.
" 16	Nelson—Reservoirs	Corporation	Town Hall, Nelson.
" 18	Amsterdam—Cranes	Town Council	Municipal Printing Office, Amsterdam.
" 19	London, S.W.—Bridge	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 19	Portsmouth—Valves	Urban Sanitary Authority	Borough Engineer's Office, Town Hall, Portsmouth.
Aug. 1	Athy—Water Supply	Guardians	Dr. J. Kiribridge, Athy, Ireland.
" 1	Cairo—Bridge		Inspector of Irrigation, Second Circle, Cairo.
No date.	Ilford—Well	Sanitary Steam Laundry Co.	Secretary, 20, Woodlands-road, Ilford.
"	Parsonstown—Waterworks	Guardians	H. Barlow, Town Clerk, Parsonstown, Ireland.
"	South Shields—Floating Dock		Mabane and Graham, King-street, South Shields.
IRON AND STEEL—			
July 11	Glasgow—Grates, &c.	Corporation	Mr. Hannah, Town Clerk, Glasgow.
" 12	Southampton—Pipes	Corporation	W. Matthews, Waterworks Engineer, Southampton.
" 12	St. Pancras—Pipes	Vestry	Clerk, Electricity Department, 57, Pratt-street, N.W.
Aug. 2	Ottawa, Canada—Supply of Steel Rails		L. H. Jones, Dept. of Railways & Canals, Ottawa, Canada.
" 23	Coolgardie, Australia—Steel Pipes	Government of Western Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
ROADS—			
July 9	Eccles—Paving, &c.	Corporation	Borough Engineer, Eccles.
" 11	Alloa—Pavements		A. Kerr, 37, Mill-street, Alloa.
" 11	Clitheroe—Footpaths	Corporation	J. S. Sharpe, Borough Surveyor, Clitheroe.
" 11	Cheadle—Street-making	Urban District Council	E. Sykes, Cheadle.
" 11	Landore—Street Works	Swansea Corporation	Borough Surveyor, 13, Somerset-place, Landore.
" 11	Maidenhead—Street-making	Town Council	P. Johns, Borough Surveyor, Guildhall, Maidenhead.
" 11	Ogmore—Limestone, &c.	Urban District Council	H. Dawkin Williams, Surveyor, Ogmore.
" 12	Stranraer—Paving	Town Council	W. Black, Town Clerk, Stranraer.
" 13	Chailey—Road Roller	Rural District Council	C. Patrick, 89, High-street, Lewes.
" 14	Quarry Bank—Road-making	Rural District Council	J. T. Abbiss, High-street, Quarry Bank.
" 16	Benfield—Roads	Urban District Council	J. Dixon, Surveyor, Benfield.
" 18	Larne—Roads	Edward Coey	W. J. Fennell, 11, Chichester-street, Belfast.
" 19	Carlton—Road-making	Urban District Council	R. Whitbread, Burton-road, Carlton.
" 26	West Ham—Streets	County Borough	L. Angel, Town Hall, Stratford, E.
SANITARY—			
July 12	Wickwar—Sewage Works	Rural District Council	J. F. Trew, County-chambers, Gloucester.
" 13	Twickenham—Sewers	Urban District Council	G. B. Laffan, Town Hall, Twickenham.
" 16	West Bridgford—Sewers	Urban District Council	W. Pare, West Bridgford.
" 18	Barnet—Sewers	Urban District Council	W. H. Maysbridge, 40, High-street, Barnet.
" 19	Croydon—Sewers	Corporation	Borough Engineer, Town Hall, Croydon.
" 19	Honley—Sewerage Works	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 19	Honley—Sewer	Sewerage Board	W. H. Radford, Angel-row, Nottingham.
" 19	South Crosland—Sewers	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 20	Boston Spa—Sewers	Wetherby Rural District Council	J. Waugh, Sunbridge-chambers, Bradford.
" 20	Wolverhampton—Sewers	Sewerage Committee	J. W. Bradley, Town Hall, Wolverhampton.
PAINTING AND PLUMBING—			
July 11	Aberdeen—Painting Church	Town Council	J. Rust, 224, Union-street, Aberdeen.
" 11	London, N.E.—Painting Schools	Wanstead School Board	J. T. Bressy, 70 and 71, Bishopsgate-street Within, E.C.
" 12	Ipswich—Painting Schools	School Board	School Board Offices, Ipswich.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
July 16	Beverley—Extension of Offices		J. Bickersteth, County Hall, Beverley.
" 27	West Hartlepool—Refuse Destructor		J. W. Brown, Borough Engineer, West Hartlepool.
" 27	Wivenhoe—Water Supply Scheme		Urban District Council.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
" 16	Sulford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 31	Glasgow—City Improvements	£100, £50, £25	Glasgow Corporation.

PROPERTY & LAND SALES.

HAMPTON and SONS beg to announce that their AUCTIONS of LANDED ESTATES, town and country Residences, Investments, Business Premises, and other Properties, are held MONTHLY at the MART, Tokenhouse-yard, E.C.

Auctions can also be held on other days, in town or country, by arrangement; also Sales and Valuations of Furniture, Pictures, Farming Stock, Timber, &c.

June List of Estates, town and country Residences, Hunting Boxes, and Sporting Properties can be had gratis on application to Hampton and Sons (Ltd.), 1, Cockspur-street, S.W., or by post, three stamps.

Auction and Estate Offices, 1, Cockspur-street, Pall Mall, S.W.

FINCHLEY ROAD.

Occupying a pleasant position in this favourite residential locality, close to Marlborough-road Station, with frequent service of trains to the City and West End, and within a short drive of Regent-street.

The conveniently placed, double fronted, detached Family Residence and Stabling, known as Bishop's Lodge, 35, Finchley-road, N.W., substantially built, and standing well back from the road, approached by a carriage-sweep. Held for 39 years unexpired from Michaelmas next, at a ground rent of £20 per annum. Possession on completion of the purchase.

Also the Two well-placed and attractive, semi-detached Houses, Nos. 5 and 15, Finchley-road, N.W., each containing six bed rooms, bath room, three reception rooms, conservatory, and usual domestic offices. No. 5, Finchley-road, is let upon a five years' lease from September, 1897, at £90 per annum, thus forming a good investment. Both held on lease, having an unexpired term of about 23 years, at a ground rent of £11 per annum each. Vacant possession of No. 15 on completion of purchase.

HAMPTON and SONS will SELL the above by AUCTION, at the Mart, E.C., on WEDNESDAY, JULY 13, 1898, at 2 o'clock, in three lots (unless previously disposed of by private treaty). Detailed particulars and conditions of sale can be had of Messrs. Foss and Ledsam, Solicitors, 5, Fenchurch-street, E.C.; and of the AUCTIONEERS, 1, Cockspur-street, S.W.

Close to railway stations on L. and N.W. Midland, Met., and N.L.; also bus routes to City and West-end.

MR. LEOPOLD FARMER will SELL by AUCTION, at the Mart, E.C., on WEDNESDAY, JULY 27th, 1898, at 2 o'clock, the following: WEST HAMPSTEAD.—With possession.—3, Sherif-road, Westend-lane.—Freehold detached Residence, having five bed and dressing rooms, bath, two reception rooms, conservatory, usual offices. No basement.—Solicitors, Messrs. Futvey, Field, and Baker, 23, John-street, W.C.

ST. JOHN'S WOOD.—With possession.—117, Alexandra-road.—Long Leasehold Residence, having six bed and dressing rooms, bath, three reception rooms, usual offices. Good garden.—Solicitors, Messrs. Yeo and Co., 41, Finsbury-pavement, E.C.

Particulars and conditions of sale at the Mart, E.C.; the respective SOLICITORS; and the AUCTIONEER, 46, Gresham-street, E.C., and Kilburn, N.W.

Little Iford, within a few minutes from East Ham, Iford, and Manor Park Stations.—Fourth Auction Sale.

THE PREMIER LAND COMPANY (Limited) having sold every lot at their previous auction sales, will SELL by AUCTION, at the PUBLIC HALL, Plashet-grove, East Ham, on WEDNESDAY, JULY 20th, 1898, at 7.30 in the evening precisely, 120 valuable FREEHOLD PLOTS, including frontages to Rectory-road and Elsenham-road, also valuable shop plots in Church-road. No tithe or land tax. Payment by instalments, spread over 4½ years, if desired. Possession on payment of deposit. Free conveyances. The new roads are formed and kerbed, and have separate sewers and surface water drains.—Particulars, with plan and conditions of sale, may be obtained, when ready, at the place of sale; the principal hotels in the neighbourhood; of the PREMIER LAND COMPANY (LIMITED), 10, New Broad-street, E.C.; Messrs. TAYLOR and TAYLOR, Solicitors, 10, New Broad-street, E.C.; or of Mr. H. A. RAWLINS, Surveyor, 45, Queen Victoria-street, E.C.

HILL PARK ESTATE, Westerham, Kent, twenty miles from London, 500ft. to 700ft. above sea level.—FREEHOLD choice BUILDING SITES for SALE on this rising, high-class residential estate, from one acre and upwards. Chalk subsoil; magnificent views. Also excellent, well-built Residences to be sold or let. Rents from £50 to £250 a year. Water supplied by the West Kent Water Company. Fast through trains to and from City daily.—Apply to the RESIDENT AGENT, on the Estate.

TO BUILDERS.

The Freeholder of a large suburban Estate (S.W.) wishes to meet with ONE or TWO BUILDERS accustomed to building good-class suburban property of from £60 to £120 a year rental. Main road, prettily wooded sites for houses. Plenty of ground to each plot, several having tennis lawns; main drainage; cricket and tennis clubs and three golf courses within a mile. Eight miles from Royal Exchange. Some shop plots adjoining railway station on main road. The land will be sold or let with restrictions, and advances can be had. Unquestionably one of the best things going at the present time for the right man.

Freeholder's Surveyors and Architects, Messrs. CHESTERTON and SONS, 51, Cheapside, E.C.

Lambeth.—Valuable Ground Rent, with Reversion in 1916.

MESSRS. ARBER, RUTTER, and WAGHORN will offer for SALE, at the MART, Tokenhouse-yard, City, on WEDNESDAY, JULY 20th, at One o'clock precisely, a well-secured COPYHOLD GROUND RENT of £20 10s. per annum, arising out of

the five messuages, Nos. 90, 92, 94, 96, and 98, Vauxhall-walk, with reversion at Christmas, 1916, to the rack rents, estimated at £175 per annum.

Particulars of sale of Messrs. WERN, NICHOLS, and Co., Solicitors, 11, Argyll-street, W., and of the AUCTIONEERS, 1, Mount-street, W.

Unusual opportunity of acquiring a high-class Marine Freehold Residence at Bognor-on-Sea.—Purchasers need only pay a deposit of 10 per cent., the balance by half-yearly instalments extending over nine years.—The imposing House, No. 2, Park-terrace, in an exceedingly pleasant position on the esplanade, facing these. It contains eight airy bedrooms, four spacious reception rooms, and ample domestic offices. Suitable for a high-class boarding house. Also Freehold Houses, 3 and 4, Lansdown-place; let at £65 and £70.

MR. GEORGE F. HARRINGTON will SELL the above by AUCTION, at the MART, London, E.C., on JULY 26th, at TWO, in three lots.

Particulars of W. J. MYATT, Esq., Solicitor, 23, Abchurch-lane; and of the AUCTIONEER, 16, Abchurch-lane, E.C.

By order of the Trustees of the late Robert James Chaplin, Esq.—Catford.—To Builders and others.—10a. Or, 18p. of Freehold Land, situate in a first-class position, with possession at Christmas next, when part will be available for building, having existing frontages; also a Freehold Ground Rent of £30 a year, secured on residences, in the same neighbourhood, which will be sold by Auction by

MR. GEORGE F. HARRINGTON, at the MART, E.C., on JULY 26th, at TWO, in two lots.

Particulars of Messrs. BADHAM and WILLIAMS, Solicitors, 3, Salters' Hall-court, E.C.; and of the AUCTIONEER, 16, Abchurch-lane, E.C.

MESSRS. GREEN and SON, AUCTIONEERS and SURVEYORS,

28 and 29, St. Swithin's-lane, London, Beg to announce that their SALES by AUCTION of FREEHOLD, LEASEHOLD, and COPYHOLD PROPERTIES, Ground Rents, Life Policies, and Reversions take place at the MART on the LAST FRIDAY in the MONTH, and on such other occasions as may be arranged.—Particulars are invited 21 days prior.

MESSRS. GREEN and SON undertake SURVEYS and VALUATIONS of LAND and HOUSE PROPERTIES, as well as Machinery and Plant, for

Ratings, Compensations, Partnerships, Assessment Appeals, Estate Duties, Dilapidations, Fire Losses, Mortgages, and other purposes. Estates managed and rents collected under Receivership and other powers.

Radlett, Herts.—Fifteen miles from London and five from St. Albans.

MR. F. G. WHEATLEY (in conjunction with Mr. W. F. INGRAM) has received instructions to OFFER for SALE by AUCTION, on THURSDAY NEXT, JULY 7th, 1898, in a MARQUEE on the ESTATE, at 1.30 p.m., 58 PLOTS of FREEHOLD BUILDING LAND, suitable for the erection of all classes of houses. The estate adjoins Radlett Station, on the Midland Railway, and is surrounded by beautifully-wooded country. Land tax and tithe free. Good roads. Water mains on the estate. Sewers laid. Payments by instalments (if desired). Deeds free of law costs. The sale will be preceded by a luncheon at One p.m.

Particulars, plans, and conditions of sale may be obtained of E. C. PHILLIMORE, Esq., Cobden-hill, Radlett; Messrs. BURGOYNES, MILNES, and GREATERBACH, Solicitors, 356, Oxford-street, W.; Mr. W. F. INGRAM, 2, St. Andrew's-place, Lewes, Sussex; or of the AUCTIONEER, 263, Strand, London, W.C.

FREEHOLD BUILDING LAND.—TO BE SOLD, a valuable BUILDING SITE with extensive frontage to Lordship-lane, East Dulwich, and having an area of over 45,000ft. super. Suitable for the erection of a school or public building. Price £2000. Also several smaller plots, prices £140 to £600.—Plans and particulars of Mr. A. R. VIZARD, 12, Regent-street, Pall-mall, S.W.

TO BE SOLD, as a going concern, a BUILDING and ALLIED TRADES' CONNECTION in a first-class neighbourhood 17 miles from London. Ill health sole cause of giving up. Works in progress will be finished at once. £3000 in new contracts at remunerative prices in hand. Price with house, half-acre premises, goodwill, stock-in-trade, and plant, £2700—without house £2200. To a young energetic man this is a first-class opening; £1000 may be paid by arrangement.—Apply by letter in first instance to W. C. G., 276, Clifton road, Sparkbrook, Birmingham. 1

WANTED, PORTLAND STONE WASTE delivered into barge alongside wharf, East London.—Price and quantity to W., Bookstall, Gravesend. 1

REQUIRED, BUILDERS to take up BUILDING SITES in Westminster; also Newington Butts. Finances will be arranged.—Apply No. 37, 11, Victoria-street, S.W. 1

WANTED, an established SANITARY PLUMBER'S BUSINESS in large town; must bear strict investigation; owner might possibly remain as manager.—Reply fully to Box 8886, BUILDERS' JOURNAL. 1

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E.

R. I. B. A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

ARCHITECTURAL INSTITUTE and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence, personally or in residence. Fourteen first places.—G. A. T. Mr. DLETON, 19, Craven-street, Strand, W.C.

WATERPROOF COVERS, made from very best Navy canvas, 12ft. by 9ft. 15s.; 15ft. by 9ft., 18s. 9d.; 15ft. by 12ft., 25s.—Any size, at 1s. 3d. per square yard, can be sent on approval from H. J. GASSON, Government Contractor, Rye. 1

MARBLE.—Victoria or Cork Red, in blocks, from Viscount Middleton's quarries.—For sizes and prices at nearest seaport, apply to J. FENROSE FITZGERALD, Estate Office, Middleton, co. Cork. 6

APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

ARCHITECT and SURVEYOR'S ASSISTANT REQUIRED. Must be a neat and quick draughtsman, and able to write specifications. Preference to one with knowledge of quantities and measuring work.—Send specimen drawings, age, salary, and particulars, F.R.I.B.A., 7, Bank-buildings, Iford, Essex. 1

ARCHITECTURAL ASSISTANT (fully qualified) WANTED at once. Good at perspective and details.—Write, stating age, experience, salary expected, with copies of testimonials, to Architect, 3, Hyde-gardens, Eastbourne. 1

COSTING CLERK REQUIRED, accustomed to Builder's or Engineer's office. Must be quick at figures. One with a knowledge of architectural drawing preferred.—Address, stating age, salary expected, with copies of testimonials, to Box 760, BUILDERS' JOURNAL Office. 1

EXPERIENCED ARCHITECTURAL ASSISTANT WANTED for a permanency in the Midlands. Must be well up in details, able to take off quantities, and with some experience in surveying and levelling.—Apply, stating age, experience, and salary required, to Box H., Office of BUILDERS' JOURNAL. 1

APPOINTMENTS WANTED.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

YOUNG ARCHITECT, A.R.I.B.A., DESIRES to ASSIST others in the PREPARATION of DRAWINGS at his own office. G. SCORER, 28, Newman-street, W.

ASSISTANT seeks ENGAGEMENT in First-class ARCHITECT'S OFFICE, at small salary, with view to buying future partnership; Great Britain or abroad.—Address, C., Alma House, Long Eaton, Derbyshire. 1

CARPENTER and JOINERS' work, stairs, &c., WANTED. Piece work labour only; any description; large quantity preferred.—Box, 756, BUILDERS' JOURNAL Office. 1

INFECTIOUS DISEASES HOSPITALS.—Expert confidential ASSISTANCE rendered on designs for above by ADVERTISER; formerly draughtsman for Local Government Board; highly successful in competitions, for which moderate speculative terms are offered.—G. B., Caen Cottage, Ryde, Isle of Wight. 3

TELEGRAMS: LONDON TELEPHONE "Dividore, London." No. 1011, Holborn

DRAWING & TRACING OFFICE,

98, Gray's Inn Road, Holborn, W.C.

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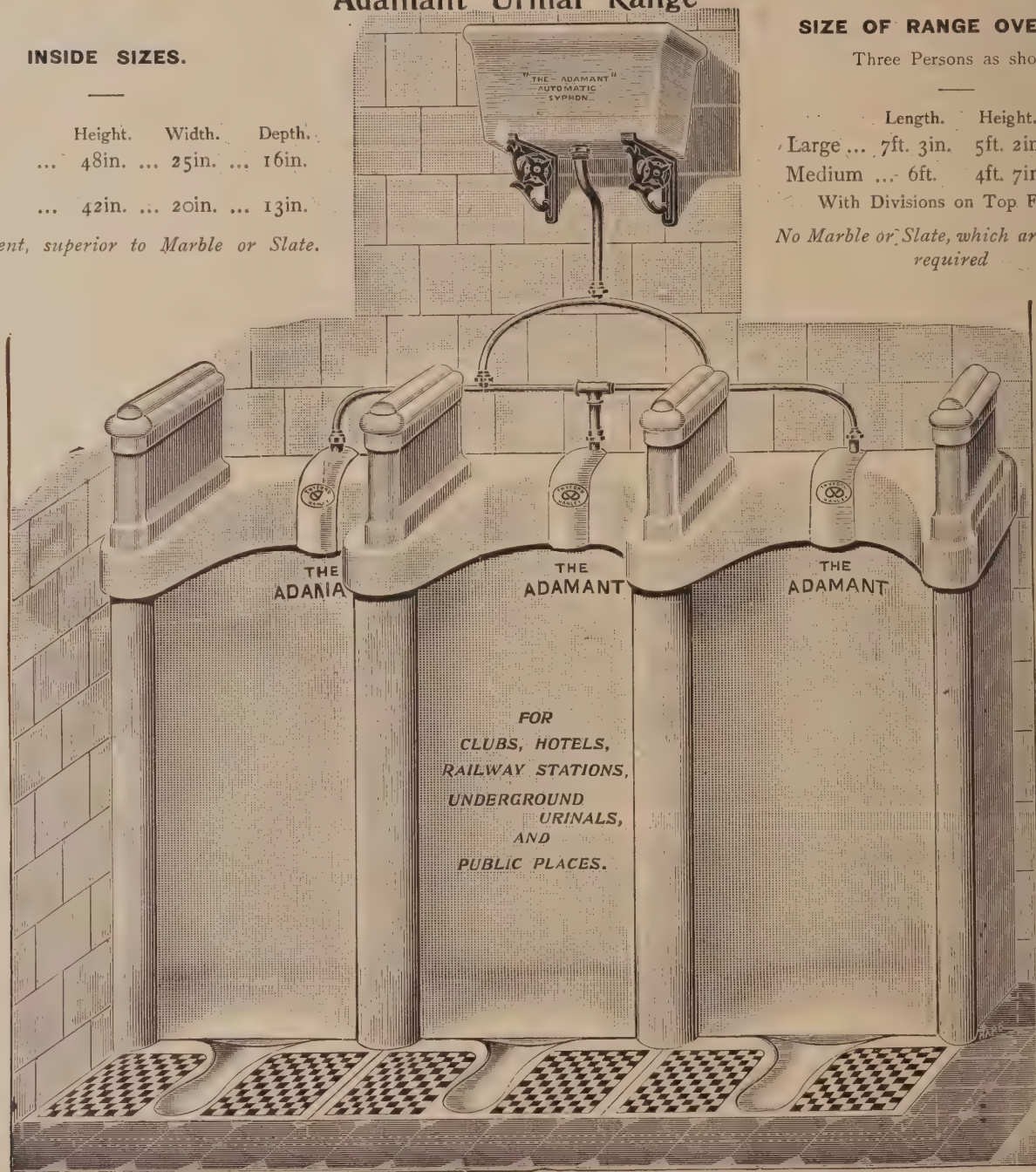
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An Architectural Causerie.

The Gladstone Memorial.

It is understood that, among the various memorials which doubtless will

be erected to perpetuate the memory of William Ewart Gladstone, a statue will be placed in Westminster Abbey, beside those of Canning, Beaconsfield, and Chatham. This proposal opens up once more the question of the propriety of such proceedings, and though this is hardly the place to discuss the general question, to point out how little all human monuments accord with modern ideas of the insignificance of any individual in the general scheme of the universe, yet when it comes to a definite proposal to erect another white marble statue in the Abbey, all those who love this venerable structure are more nearly interested. Westminster Abbey is a temple for the worship of the Deity, not for the glorification of man. Those who look upon it in this light may well question the good taste of placing any human monument whatsoever within its sacred walls, may well ask themselves whether such a proceeding is in accordance with the eternal fitness of things. If such monuments must be, cannot they be outside, or in a building designed for their reception? From the strictly artistic point of view, it is difficult to see how one can insert a modern addition to a mediæval design without destroying its unity of conception. Either the addition is a true work of Art in itself, modern in idea and in sentiment, when it will be out of harmony with the original work; or else it will be an attempt to work in an obsolete style, with ideas and sentiments out of touch with modern life—a work of archaeology, not Art. And even though it were possible—which it is not—to produce monuments which were artistic, and at the same time in character with their surroundings, yet even then our Cathedrals were not designed for this purpose, and the few places where monuments might be placed in them without detracting from the general effect are usually occupied by specimens of contemporary work. Westminster Abbey is—particularly the north transept—perhaps the worst example of a glorious interior utterly ruined. Its monuments may be the monuments of a nation's gratitude, but they are also monuments of a paltry vanity, and a vulgarity of feeling that is indescribable. They spoil the proportions, choke up the vistas, and are utterly out of place and out of harmony with the spirit of the building. A public taste that would tolerate them would tolerate anything. In this country, unfortunately, artistic opinion is rarely consulted on matters artistic, so no doubt someone will be asked to attempt the impossible, and add yet another to this chamber of incongruities. Is there any hope that at any rate we may be spared a white marble figure on an absurd pedestal? Could not the monument take some other form. Could it not at least be in bronze? It is conceivable, by those who have a robust faith in the

progress of humanity, that some day—may it be soon!—popular opinion will revolt at these monstrosities, and make a clean sweep of them. Gladstone was a man whose memory should escape such a fate. Surely he was great enough to need no statue in Westminster Abbey! But such is the irony of fate, that while he in his lifetime was so completely in accord with the spirit that broods over the Abbey, now he is dead his



OLD CHURCHYARD CROSS AT CARDIFF. THE HEAD AS RESTORED BY O. E. FOWLER, F.R.I.B.A.

countrymen can find no better way of showing their sense of his worth than to put up his effigy, to be a continual discord, a jarring note, in that harmony which, in his lifetime, he loved so well.

A. R. J.

The New Town Hall for Paddington.

It is with mixed feelings that we learn of the proposal to build a new Town Hall for

Paddington; a proposal which, by the way, is likely soon to become an accomplished fact. There can, of course, be no two ways of thinking if we have the plain question put, "To be or not to be?" for in these democratic times a local centre for the due manifestation of local patriotism is needed in every township and every self-governing district. These are the times when every village has its "Hall," and when, therefore, we cannot expect such centres as Paddington (for example) to go lacking. Look where we will in London, nearly every district has its town hall, of more or less recent date, and of greater or lesser artistic merit. From West Ham in the East to Hammersmith in the West, these municipal palaces are rising, and we may hope, with a reasonable expectation of our hope being realised, that at no distant date these headquarters of local government, of local thought and feeling, will produce that sense of citizenship which Londoners lack. London is too large and has too many divergent interests, say our critics, for this feeling to have a chance of existence; but we shall see—nay, we are just now by way of seeing, in the various schemes for the local government of London even now in the making. Upholders of, and apologists for, a central authority, may exercise their wits as much as they please upon what they have labelled "tenification," but "tenification," or, if necessary, "twentification," is in the air, and has to come, and with it the Charters of Incorporation and the Mayoral dignities that are the due of our great urban districts. We trust, however, that when these things come to pass Parliament will provide for a ratepayers' direct veto on any local undertaking of great magnitude. These are the days of rapid, cheap, and certain communication, when the arguments used against the "referendum" (or "plebiscite," whichever one elects to call it) will not work, in this direction, at least; and in future the opinions and criticisms of those who pay the piper should be suffered to select the tune. These remarks are called forth by the announcement that the Paddington Vestry has decided to build the town hall on the model of the well known town hall of Bolton, in Lancashire. We have nothing but admiration for that fine design, whose well proportioned and exceedingly dignified elevation gives majesty to the Square of that hideous cotton-spinning town in which it is situated. A classical stone building of this character is peculiarly well suited to such a place. Its breadth of design and large proportions serve as a very much needed foil to its sooty and altogether mean surroundings. Again, when the self-same design was carried out in an exactly similar way at Portsmouth, the critic could find nothing to say against its suitability, for a great naval and dockyard town would seem, from its very nature, to require buildings classical in feeling. And, in truth, the Portsmouth town hall is one of the finest things, if, indeed, not the very finest, to be seen in that great port, and has the advantage, in that clearer atmosphere, of not becoming grimed with the smoke of countless mills, as in the case of its Bolton prototype. In a place like Paddington, however, we would appear to need Architecture of the more livable, if scarcely to be called less dignified type. Paddington has no official dignities connected with it, but is rather a residential quarter, and its town hall should reflect that character. Something in the Elizabethan or Victorian Renaissance convention is required there, and it is precisely on such a question of taste that the

voice of the critic should be heard. Besides—and here's the rub for the architectural profession—how does the architect of the building to be so exactly reproduced stand? Will the Paddington Vestry consult him, and pay the usual commission for the use of the plans, as, we believe, the Corporation of Portsmouth did? Or, will they borrow the plans, and build on the cheap? Here is an argument, indeed, for copyright in architectural design. C. G. H.

THE TOMB OF OSIRIS.

BY M. E. AMELINEAU.

[Translated from the *Figaro*.]

DURING the year 1895 I had the intention of visiting Abydos, the holy town of Osiris, in order to study the temple of Seti I., which is one of the most interesting of the Egyptian monuments, and which unquestionably shows us more artistic marvels than any other in the Nile Valley.

Whilst I was making the necessary preparations towards the realisation of my desire, a group of three persons had determined to make some excavations in Egypt, and particularly upon the site of Abydos. These three persons were M. M. Sigismond Bardac, Count Henry de la Bassetière, and the Marquis of Biron. They communicated their project to M. J. de Morgan, the then Director-General of the Egyptian Antiquities, in order to obtain the necessary permission. This permission, limiting their energies to the site of Abydos, was granted them, but only on the condition that the works were directed by an Egyptologist, in order that the documents should not be lost to science. M. de Morgan very kindly thought of me, and proposed that I should take over the direction of the works, which offer I was only too happy to accept, realising my most cherished wish in wholly unlooked for conditions.

Having arrived alone at Abydos, my first care was to reconnoitre the places in which I had obtained the concession of working the excavations. It did not take me long to discover that the concession was immense, even if only the superficial area were taken into consideration. Had I limited myself to the Necropolis alone, I had a strip of land measuring nearly eight kilometres long, and in some places three kilometres broad. If it was difficult at first sight to choose a starting point, it was because, as I strolled along, I became lost in admiration of the immense sandy plain bathed in sunlight extending to the foot of a mountain which seemed to guard it still with a jealous eye, as it were a giant charged with defending it from sacrilegious profanation. From time to time I perceived the black silhouette of some enormous monument, raised formerly in this place for needs unknown, or else for some cults for ever disappeared. I saw also some poor constructions which the simple priests have built by the side of those superb monuments, and I said to myself that in spite of the grandeur of some, and the smallness of others, riches set beside poverty—the latter has invariably overcome the former.

These reflections, however philosophical they may be, did not advance me much; neither did they enlighten me at all as to the exact place at which I should commence the execution of the works.

This same necropolis had been worked at for nine consecutive years by the illustrious Mariette, the founder of the Museum of Boulaq, and I know that he admitted on the eve of his death that the excavations at Abydos had not answered to the hopes which he had every right to entertain. In the course of my wanderings in the necropolis, I had remarked several places where there had been no excavation for several autumns, and among others I noticed a brick pyramid, half destroyed, and several heaps of debris under which possibly lay concealed many important tombs. I was above all surprised at finding quite near to the mountain a series of hillocks

formed entirely of broken pottery, mixed with sand which the sand storms had accumulated there. The sight of those millions and millions of pots caused the painter, Georges Clairon, to say that all the potters of Abydos must have made a rendezvous of this place in order to dispose of all their spoiled wares, and this for several centuries.

These hillocks, which were six in number, were not contiguous, neither were they of the same dimensions, or equally spaced one from another. Some of them were very small, while others were immense, the largest being not less than 140 metres long by 109 broad, with a height of from seven to eight metres. So I decided to interrogate these hillocks; it was a huge undertaking and would require a considerable time to complete. I saw this when I made my first examination, but I felt drawn by an irresistible force towards the place. After some weeks of survey, I took with a firm hand the direction of the excavations, and led my men towards the heaps of pottery which the natives call "Om el ga'al," which is to say, "The mother of the bowls." I did not leave the works after having once commenced them, and it is upon this site that I discovered in the first year the prehistoric dynasties of Menes, in the second the tomb of Set and of Hams, and in the third year the tomb of Osiris, for which Mariette had sought fruitlessly for nine years. And not only have I discovered in the hillocks which I have excavated, the monuments just enumerated, but also evidences of the state of civilisation in which men lived at an epoch which cannot be less than from seven to eight thousand years before our era. I have been able to verify also the fact that even at that remote age the greater part of the arts which are practised in our day were then already cultivated; that this culture had progressed so much already that the artists of those far-off ages were capable of real masterpieces; that, in particular, the Stone Age was far from being an age of barbarism, as we in Europe are too prone to believe; that the men of those days knew how to carve every kind of stone, even the hardest, such as diorite, or the most friable; they even at that early date knew how to carve rock crystal with consummate ability. Writing had been invented; I found stiles covered with hieroglyphics of the same nature as those employed later in historic times, but which are yet unknown. The art of sculpture had made astounding progress; Architecture was established; the art of painting was in its infancy. Industrial art was already capable of work in bronze. The potters' Art, though clumsy, could nevertheless produce work of very large dimensions. They were perfectly acquainted with the art of working the hardest woods, of doing marquetry, and had already discovered the secrets of the art of making enamelled glass. In a word, almost all primitive human industries were then known and practised. Certain details of objects discovered show that the relations of races were far more extended than has been supposed. The coffins in which the corpses were inclosed were made of cedar; this could only have been if relations existed between Egypt and Syria; in like manner we find ebony from Central Africa; and I found skeletons of dwarfs, which may perhaps have come from ancestors of the tribes discovered and described by Stanley in "Darkest Africa." And not only have I discovered proofs of human industry of the arts and the races of that epoch, but also undeniable evidences of the cereals then used as food. I neglected nothing of all that I discovered in the course of my excavations, persuaded that things devoid of interest for some might yet be of the deepest interest to others. In this way I have gathered together a very rich collection of objects of all kinds, which are now being submitted to scientific analysis, and to the examination of specialists. Yet more, whenever any part of the excavations has yielded objects particularly interesting to science, my companion, M. Lemoine, a real artist in photography, took photographs with the greatest willingness, and with a skill beyond all praise.

Thanks to my system of gathering together

the smallest objects, I have discovered that the religious disputes—rife in Egypt during the sixth century of our era, when the Christian religion had definitely established itself in the valley of the Nile—must bear the blame for those reprehensible spoliations; for not only have I discovered undeniable traces of the passage of the spoilers, but even their names written in charcoal on fragments of pottery; so that for all the problems which have arisen during these excavations we have the elements of solutions, and that these solutions may be found very shortly. For this reason I have not been at all surprised at the stir made by the Abydos excavations throughout the scientific world, because I know they deserve both the fame and the favour they have received.

AN INTERESTING CHURCHYARD CROSS.

A FEW weeks ago we referred to the long-drawn-out restoration of Cardiff Parish Church, and this week, on our front page, we illustrate the head of the old churchyard cross, which has also undergone restoration, and which, in its present position in the churchyard, is intended as a memorial of the work of restoring the church, which has been in progress for the past ten years. In olden times people were in the habit of raising landmarks and monuments in the shape of market crosses and churchyard crosses. In many cases these structures and their associations form the most interesting episodes in county or ecclesiastical history. The parish of St. John, Cardiff, was furnished with its churchyard cross, erected, perhaps, four centuries ago, but by the beginning of this century the elements had done their work so effectually that nothing but a meaningless stump was left. With such an extensive restoration of the church in hand, Canon Thompson, the Vicar, conceived the idea of re-establishing the church cross. The dedication of this cross—which is a very beautiful object in itself—was performed on a recent Sunday, the first suitable opportunity after the structure had passed out of the workman's hands. The architect chosen when the task was decided upon was Mr. C. B. Fowler, F.R.I.B.A., of Cardiff, who has been employed all through the church restoration. We have mentioned that a stump of the ancient cross remained. It was decided to utilise this, but upon examination it was found that a large foundation had been covered by earth, and this also was restored. The shaft has been added to, and a fine ornamental head provided whilst the socket rests upon a massive base running up in steps, the whole measuring up to a height of 18ft. The shaft and head are of best Portland stone, and the carving was carried out by Mr. W. Clarke, of Llandaff. The design of the head represents the crucifixion on one side and the ascension on the other side, surmounted by a canopy and crocketed pinnacles. The face of one of the steps at the base bears the inscription:—

FINIS CORONAT OPUS, 1898.

— LAUS DEO. —
1887—1898.

"It may interest your readers," writes Mr. Arthur C. Blomfield, "to know that the three squirrels of Messrs. Goslings (Fleet Street) will be affixed to the window bars in the new building in the same position they formerly occupied, and that the watch-box is preserved in the museum at the Guildhall."

THE Lord Mayor of Liverpool opened, last week, another institution in connection with University College in that city. This is Ashton Hall, a museum and school of hygiene. The building was presented by the late Mr. George Holt, and afterwards remodelled. It is a large building, with well-lighted museum, laboratories, and lecture room, the latter fitted with an electric air lamp. The museum rooms are well-fitted, and are always stocked with numerous useful exhibits.

ACADEMY ARCHITECTURE.

BY A SPECIAL CORRESPONDENT.

THE Architectural Room at the Royal Academy can scarcely be said to be at its best this year. The most that can be said is that it is interesting both in the variety of its subjects and in the quality of its drawings. The gallery, however, is an improvement on last year, the three models giving additional interest. One would still wish to see less perspective drawing and more geometrical design, and possibly, as years go on, exhibitors will be content to show geometrical elevations, although, perhaps, in this case there would be even less to incite the general public to visit this room, which may or may not be a good thing. Where the geometrical elevations can be supplemented by a perspective, or even by a model, the result is all that can be desired.

With regard to the models, the largest and most important is "A Model of the South-west Angle of the New Museum and Technical School, Liverpool" (1804), exhibited by Mr. E. W. Mountford. It shows a part of the side elevation near the angle of the building. We are inclined to think that the rustication is rather overdone. Close by is hung a perspective view of the building, and here we are able to compare in an interesting way the model with the drawing. Mr. John Hawes exhibits (1805) a prettily-tinted model of a design for a Westmoreland church, presumably on a hilly site. The design is of a simple character, with plain buttresses and round-headed windows at the side, within a recessed segmental wall arch abutting against the sides of the buttresses. The other model is hardly so satisfactory. It shows a house at Haslemere, certainly picturesque, but the colouring is not all that could be desired. To come to the drawings, we will first consider the work of the Academicians. The place of honour is occupied by the diploma work of Mr. T. G. Jackson, R.A., who, in one of his delightful drawings, illustrates the New Schools, Oxford. The style is that type of free classic which Mr. Jackson has made so decidedly his own, especially at Oxford. Mr. Jackson also exhibits the new chapel of Giggleswick School (1647) and the new buildings for Uppingham School (1648), in the latter case the buildings adjoin those designed by Street, and we cannot but help admiring the way in which Mr. Jackson has made his work harmonise with that of Street. The Giggleswick School is rather more out of Mr. Jackson's usual type than the other two exhibits; the central feature is a leaded octagon cupola, the walls supporting it being treated with a slight batter, which, as the site is a hilly one, gives a great appearance of solidity.

Mr. George Aitchison, R.A., exhibits a decoration in marble, mosaic, and paint, the effect of the colour combination is rich.

Sir Arthur W. Blomfield, A.R.A., shows a drawing, by Mr. Roland Paul, of the interior of the new chapel at Malvern College, it is of the usual collegiate type, and hardly calls for comment. Mr. J. F. Bodley, A.R.A., has two interesting exhibits—Chapel Allerton Church, Leeds (1712), and a pulpit for St. Michael's, Croydon (1714).

There are not so many exhibits of public buildings this year as usual, but we must single out the design for the new Municipal Buildings and Law Courts at Cardiff by Messrs. Lanchester, Stewart, and Rickards. The design has been very considerably improved; since the competition drawings were shown the buildings appear to have been somewhat raised, which, if we remember rightly, was the recommendation of the assessor, Mr. Waterhouse. The buildings are shown by a perspective from the hand of Mr. Rickards, which is quite a masterpiece in its way.

Mr. Belcher shows his design for Colchester Town Hall, illustrated by a large and boldly coloured perspective, as well as by geometrical

drawings of the details of the tower. These are of particular interest. Mr. Belcher shows also his design for Cambridge Guildhall (1734), which is even more satisfactory than his other exhibit. The front consists chiefly of three projecting masses, the end wings solid, the centre one with open columns. On the ground floor is a loggia and balustrade. The two end wings are surmounted by massive stone globes, which form a very curious feature of the design. Mr. Bryden and Mr. Beresford Pite both exhibit designs for Colchester Town Hall, the former having a dignified elevation, consisting of two stories of rusticated wall and a sculptured frieze, the upper story being treated with columns; while Mr. Pite shows an elevation consisting principally of three large arches, the whole height of the front. This drawing suffers much from being skied.

Messrs. Gordon, Lowther, and Gunton exhibit the Royal Masonic Institution for Boys, at Bushey. It hardly appears so successful a design as we should like to have seen for so important a building.

(To be continued.)

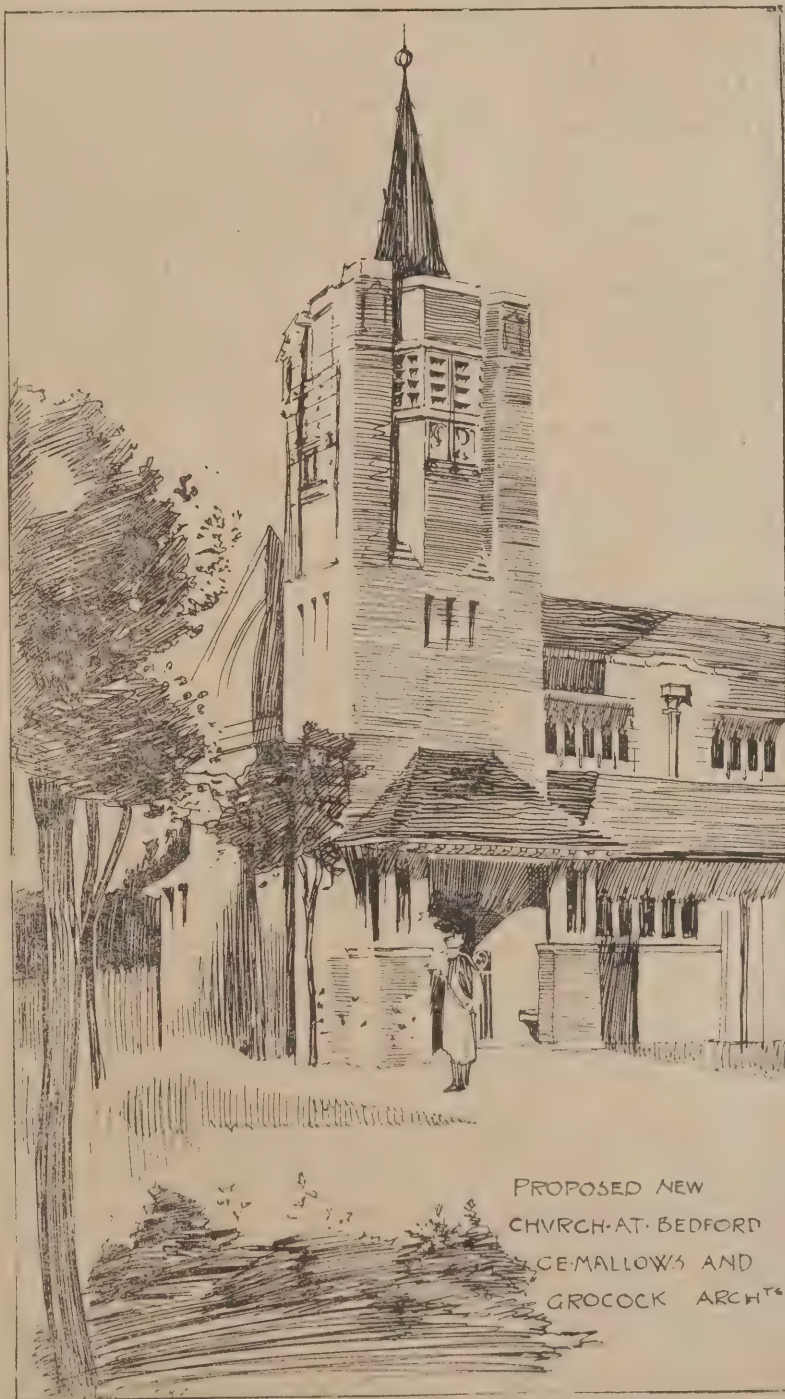
A NEW United Methodist Free Church, Buttrills Road, Barry Dock, has been opened.

EGYPTIAN ARCHÆOLOGY.

THE RESULTS OF RECENT RESEARCHES.

IN the field of Egyptian archaeology few have accomplished so much, whether in the richness and variety of the actual objects discovered or in harmonising fresh results with the work of other scholars and explorers, as Professor Flinders Petrie. Egyptologists in recent years have done much to reconstruct and present the evidences in material form of a civilisation extending through many centuries before connected history begins, and a valuable addition to their labours, says the Times, has been made during the past season by Mr. Petrie and many fellow-labourers, and the results of their work are now on view at University College, Gower Street, to the 30th inst. The exhibition includes

ANTIQUITIES FROM THE EXCAVATIONS of the Egypt Exploration Fund at Denderah, about thirty miles north of Thebes, and those of the Egyptian Research Account at Hiera-



PROPOSED NEW
CHVRCH AT BEDFORD
JAMES MALLOW'S AND
GROCKOCK ARCHTS

A SKETCH AT THE ROYAL ACADEMY.

konpolis. The resources of the former have to the extent of one half been devoted to Denderah, the other half being still needed for Deir-el-Bahri. The history of Denderah, Professor Petrie tells us, as reflected in its cemetery, is a beginning in the fourth dynasty, a flourishing age from the sixth to the eleventh, and then a later prosperity in the Ptolemaic and Roman times. This work, extending about half a mile back from the temple enclosure, and lying along about a mile of the desert, was carried on by Professor and Mrs. Petrie, Mr. Arthur Mace, Mr. Norman Davies, and Mr. MacIver. The work of the Research Account was a continuation of last year's, and Mr. Somers Clarke and Mr. J. J. Tylor joined resources with it to enable Mr. Quibell to carry on his excavations at Hierakonpolis opposite El Kab. Previously the

REMAINS OF PRIMITIVE KINGS

were all sepulchral, but here have been discovered for the first time monuments of war-

ancient objects. It is claimed for Mr. Quibell's finds that many of them date before the fourth dynasty, or about 4000 B.C. The cemetery upon the desert yielded pottery of the types well-known in the later New Race graves of Naqada, which go even behind the earliest kings. The later types are similar to those found in the tomb of Menes and are assigned to the first dynasty. Among the things found are many of the familiar slate palettes, mostly of the later square type, one in the form of a scorpion, others with gazelles and giraffes and other animals, real or mythical, delineated with a wonderful vigour and freedom. In one place in the temple area was found a trench filled with ivory carvings buried as offerings. It needs an expert, unfortunately, to see that they are ivory, to such an extent are they rotted away and encrusted with lime; but they are of great interest as representing very early people, probably of the second dynasty. The male figures mostly have scanty pointed beards and sharp features, like the heads of

pretation is "oxen 400,000, goats 1,422,000, captives 120,000." The most striking item, however, is the model of the great palette now kept at the Gizeh Museum, exhibiting a curious diversity of human types, only one of which is of the later Egyptian. Two are bearded men with long hair like the men shown in the tomb of Pahari at El Kab, and reproduced in Mr. Tylor's beautiful book. The design is very elaborate, with many figures of men and animals, and seems to indicate an alliance between several distinct races. This is considered to be the most important

HISTORICAL MONUMENT OF THE EARLY KINGS.

Professor Petrie's work at Denderah affords results extending over a vast period. One is a stele of the third or fourth dynasty of a prophet of Hathor Suten-abu, which stood over the elaborately-carved false door, which is like sculpture of the third dynasty in the Louvre. This was the only sculpture found in



A HOUSE:
AT THORPE:
MANDEVILLE:
C.F.A. VOYSEY:
ARCHITECT:

A SKETCH AT THE ROYAL ACADEMY.

fare and of history known to belong to the earliest dynasties. The excavations were assisted and plans drawn by Mr. Somers Clarke, Mr. F. W. Green, Mr. Peers, Miss Pirie, and Miss Quibell. We are reminded by Professor Petrie that the present exhibition is even more than usually disproportionate to the actual discoveries made, as what from his point of view he naturally terms the exactions of the Gizeh Museum have even exceeded the half which it can lawfully claim. The Egyptian Government requires the gratuitous surrender of all the most valuable objects, and taxation is imposed on the explorer even in respect of what he is obliged to leave behind him. This appears to be a substantial grievance; but, all drawbacks notwithstanding, Professor Petrie and his fellow-workers have reason to be proud of what they can show. The distinctive merit of these recent researches is that they appear to fill a large intermediate space between the aboriginal and the historical period, and extend our knowledge far back into what were the

MISTS OF A RECORDLESS ANTIQUITY.

And that which is still more astonishing is the beauty and finish and the free and unconventional character of many of the most

of the New Race of pre-dynastic times, and probably represent the Libyans who then occupied Egypt. Nearly all wear girdles, and most have a dagger sheath in front, and only one has the usual Egyptian kilt. The female figures are nearly all nude, with long wavy hair to the waist and two locks hanging in front over the breasts. These, on account of their nudity, are taken not to represent living persons and bear no sacred emblems to connect them with any dieties. These female figures are of the dwarf bandy-legged type familiar in figures of Ptah Sokar, and on one is a close-fitting garment reaching to the knees. Other figures are outlined upon

IVORY CYLINDERS AND PLAQUES

—one with the Ka name of King Nar-mer, holding a staff smiting bound enemies. Wands, models of boats, bowls and stone vases, maces, alabaster dishes and porphyry bowls, green glazed ware of very early date representing monkeys, pigs, calves, oryxes, pelicans, scorpions, and other animals, also claim attention. The great limestone maces with relief sculptures are of extraordinary interest and beauty; and on one are several male figures, the King among them, beautifully wrought, and at the base hieroglyphs whereof the inter-

the group of great brick mastabas of the earliest style. On the surface of the desert were picked up great quantities of worked flints, mostly of palæolithic types, but statues such as are common in the Old Kingdom cemetery at Memphis are rare at Denderah, and only one large one was found of Prince Adui. The great mastabas of the princes of the sixth dynasty proved the most important in the cemetery, the series including Princes Mena and Adu under Pepy II., Prince Adu II., one nameless, Prince Merra, and Prince Beb. Bowls of the Old Kingdom and much pottery of the Middle Kingdom, probably of the eleventh and twelfth dynasties, are also displayed. The catacombs for sacred animals, consisting of brickwork tunnels branching from main galleries, extended over a large area, and among the bones was a large quantity of

BLUE-GLAZED OBJECTS OF TEMPLE FURNITURE.

These appeared to belong, by the names, to the eighteenth dynasty. There are also sculptures of Prince Merra, with his wife Beba and his daughter Duduerclutsa, which are assigned to the close of the sixth or early in the seventh dynasty. The style, though becoming degraded

and clumsy, retains the character of the Old Kingdom. Other objects are a flint hoe of the Old Kingdom, a set of funereal model tools, a stone button of a foreign type, beads, pendants, necklaces of the Middle Kingdom, alabaster vases, a fine flint knife, and a hollow silver bangle. Of bronzes, two important finds were made, both of temple furniture, which had probably been buried in the confusion of the twentieth dynasty. One of the most interesting of the exhibits is a beautifully-carved group of Mentuhotep, son of Bebbu, and his wife Nefermesut, daughter of Hepy, probably of the eleventh dynasty. The man's head is lost, but the woman's is equal to the best work of the Old Kingdom. There are also other carefully-carved pieces of the tenth or eleventh dynasty, and on one is an inscription of the type often found in that district, giving a catalogue of possessions. Some of the figures display the same feeling as that which is discernible in many island statues in Cyprus and the Archipelago. Besides remains of early date were found Roman glass, coins of Diocletian and other Emperors to the time of Constantine. The catacombs also disclosed many bodies of animals, cats, goats, ibises, and snakes, and, in the later tunnels, the ichneumon, monkey, and dog. Seldom has a collection been brought together of a variety so great and extending over so vast a period of time.

A CITY SCHOOL EXTENSION.

AN important extension of the Guildhall School of Music was opened last Monday. The extension is a much needed improvement. The additional land which the new building covers measures 72ft. by 57ft., or an area of 3700ft. super. The ground and first floors of the new building are occupied by a spacious orchestral saloon, extending to nearly the whole space, with a maximum height of 30ft., and affording seating accommodation for 650 persons. The stage is 47ft. by 14ft., and 27ft. high. In the basement there are a number of dressing-rooms in connection with the stage. The number of class-rooms is thirty, but, as three of the class-rooms in the present building are required for access to the new wing, the net gain is twenty-seven rooms.

EMERGENCY EXITS,

4ft. wide, are provided on each side of the saloon, three doors discharging directly on to John Carpenter Street, on the east side of the saloon, and at the level of the pavement, and one into the Girls' School by means of a gangway on the west side. The gallery is provided with two emergency exits, one on each side, discharging into John Carpenter Street and the Girls' School respectively, the latter by means of a bridge. From the dressing-rooms in the basement a means of escape is also provided into the playground of the Girls' School. It is satisfactory to know that no open fireplaces will be allowed, the building being heated throughout by hot air, while all the floors are fire-resisting. The walls to the rear are faced with white glazed bricks, and the front elevation with Portland stone. The style of architecture is somewhat similar to that of the present building, but, owing to the greater height, the detail is bolder, and

THE PIERS AND PILASTERS

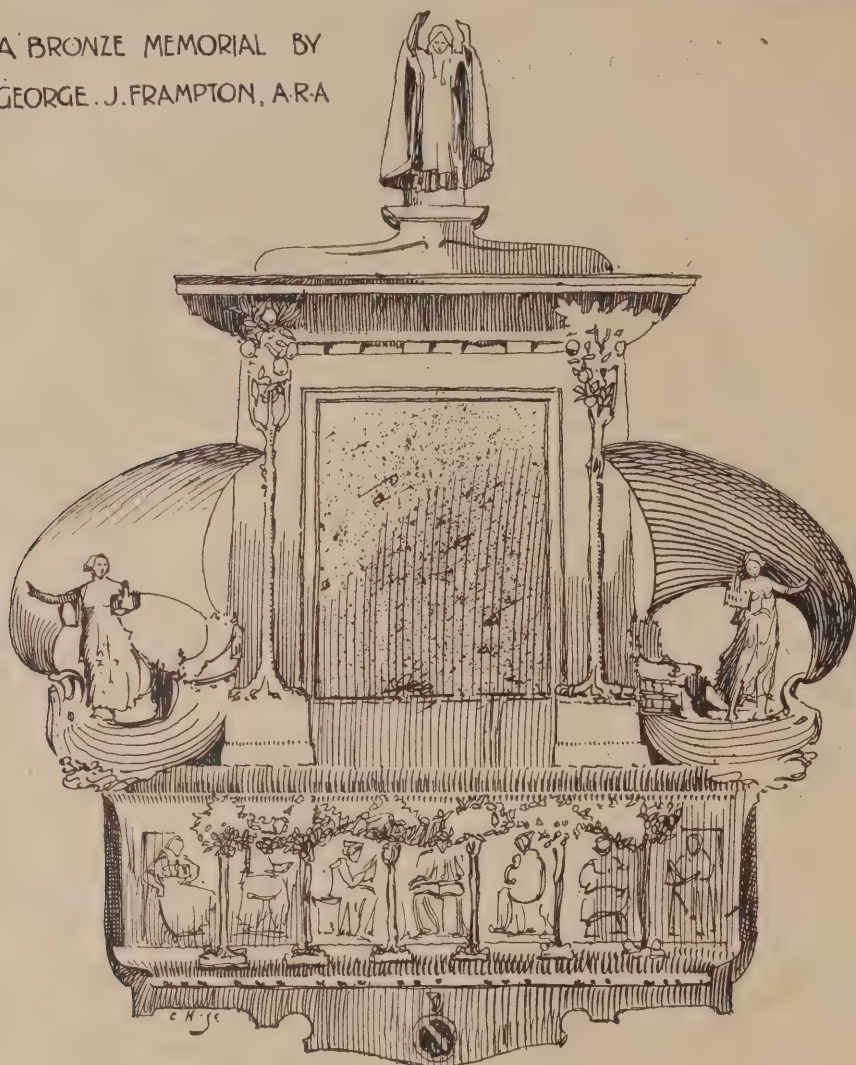
are presented in greater relief. The time will come, of course, when the old building will be raised another story, and with a continuation of the handsome roof of the new extension an architectural proportion will be realised. When that is done—perhaps before—the principal entrance to the school will be made in John Carpenter Street, which is, undoubtedly, the proper place for it. The doors on the ground floor of the extension are only emergency exits in connection with the orchestral saloon. The word "theatre" might, perhaps, be more correctly used instead of that of saloon, but there are obvious reasons why it should not be described as a theatre.

A A A



AT THE ROYAL ACADEMY: DESIGN FOR A FIVE-LIGHT STAINED GLASS WINDOW. "SCENES FROM THE LIFE OF CHRIST." BY WILLIAM AIKMAN.

A BRONZE MEMORIAL BY
GEORGE J. FRAMPTON, A.R.A.



A SKETCH AT THE ROYAL ACADEMY.

Mediæval Halls in Lancashire.

THE Historic Society of Lancashire and Cheshire recently visited several of the mediæval halls of South Lancashire. The ancient hamlet of Newbold, where a family of that name was settled as early as the time of King John, was first under survey. The old hall of the Newbolds, a many-gabled building with a small courtyard, existed till the year 1840, but at present its only remains comprise the gateway and the large masses of granite which formed the quoins to the angles of the building. After inspecting the relics and surroundings of what must once have been a residence of considerable proportions, the party drove to Belfield Hall, a mile distant. Adam, the son of Henry de Belfield, was living here in 7 Ed. I. (1278-9). About the middle of the sixteenth century the Belfields left the place, and a branch of the family settled at Cleggswood and Clegg Hall, Belfield being afterwards the seat of a branch of the Butterworth family, the last of whom, in the direct line, died unmarried in 1714. Ultimately the estate passed to Richard Townley, who had been steward to the Butterworths, and who was High Sheriff in 1752, in which year he refronted and probably

SPOILED THE OLD HALL.

The Ven. Archdeacon Wilson, rector of Rochdale, here exhibited a curious ground plan of the Hall as it used to be. The place is now in utter decay, but bears ample evidence of the unfortunate attempts made to improve its ancient characteristic Architecture. Clegg Hall was next visited. This occupies the site of an older building known as "Clegg," where in 1550 Ralph Belfield was living, and whose son married a daughter of Edmund Hopwood, of Hopwood. From his issue the estate descended to the Assheton family, who, in

1618, sold the Hall to Edmund Howorth. The present building, which was erected early in the seventeenth century, was described in 1626 as a "faire capital messuage, built with free stone, with all new faire houses of office thereunto belonging, with gardens, fishponds, and closes of land." The Hall is still an ornate building, though all its rural accessories have departed, and it now stands in juxtaposition to a railway and a canal, which destroy all semblance to the picturesque and reposeful beauty it must once have enjoyed. This Hall, it may be mentioned, is the scene of Roby's "Clegg Hall Boggart." The party now drove towards Rochdale, passing the sites of

BUCKLEY, HAMER, AND HOWORTH HALLS, and also "The Great House" at Amen Corner in Rochdale, the oldest house in the town. This district is, of course, classic ground to the admirers of the Lancashire worthy, "Tim Bobbin," who was born in the neighbourhood and lies buried in the churchyard, his simple grave being duly visited by most travellers. Rochdale Church, founded about 1194 and several times rebuilt, was inspected, its interesting features being pointed out by Archdeacon Wilson, not least among them being a very curious ancient font, which, after lying hidden in the ground upwards of 250 years, was discovered in 1892 and once more set up in the church. After being shown through the very handsome interior of the Town Hall, the party proceeded to the Public Library, where is preserved a fine collection of the MSS. and sketches of "Tim Bobbin."

GOLDBER'S HILL has been sold by Messrs. Debenham, at the Mart, Tokenhouse Yard. It consists of a residence and thirty-six acres of well-wooded land, and belonged to the late Sir Spencer Wells. The purchaser secured the property for the sum of £38,500.

ARCHÆOLOGICAL CONGRESS.

THE PRESERVATION OF ANCIENT MONUMENTS.

THE tenth annual congress of archæological societies was held last week in the rooms of the Society of Antiquaries at Burlington House, London. Lord Dillon presided. The first subject that came up for discussion was the national portrait catalogue. At the congress held in 1896 Mr. Lionel Cust, director of the National Portrait Gallery, was invited to prepare a form to be filled up by persons possessing portraits of historical interest, with a view to compiling a complete catalogue of such portraits existing in private collections. This form or schedule has now been printed. Mr. Stanley Leighton, M.P., brought forward a proposal to offer an inducement to the owners of

HISTORICAL PORTRAITS

to have them scheduled by exempting all portraits considered by Mr. Cust to be of adequate merit from legacy duty.—Mr. T. W. Shore seconded the motion, and said that he hoped to see this principle of exemption from legacy duty extended to the owners of ancient monuments also.—In spite of some opposition the resolution was carried.—Attention was next directed to the Blue Book issued July 30, 1897, containing information collected by our Foreign Ministers as to the means adopted in the different European countries for the protection of ancient monuments. The statement in this Blue Book that the only two nations whose Government did absolutely nothing for preventing the destruction of ancient remains were England and Russia is sufficiently humiliating to any educated Englishman. As it was quite hopeless to expect any help from the Government, it was proposed that copies of the Blue Book should be forwarded to the County Councils and Antiquarian Societies throughout the country, with a suggestion that these bodies should ascertain what ancient monuments it was desirable to

TAKE STEPS TO PRESERVE.

and how this could best be effected.—A delegate protested against a proposal which, he said, meant shifting the responsibility of keeping ancient buildings in repair on to the shoulders of the already heavily burdened ratepayer. On the other hand, it was pointed out that old structures were often swept away quite unnecessarily in order to make a job for an architect and a builder, so that in many cases the antiquary might be the means of preventing the ratepayer's money being squandered.—The Rev. Dr. C. J. Cox mentioned that, as a member of the Northampton County Council, he had found his colleagues, irrespective of party, anxious to save old buildings wherever it was possible to do so; and he gave the fourteenth century bridge over the Nene and the Queen Eleanor crosses as instances in point.—Lord Dillon remarked that in all the county councils there were men of culture fully alive to the value of relics of the past, and it was the duty of those who were educated already to educate those who were not.—Mr. G. L. Gomme said that the London County Council had already prepared

A SCHEDULE OF ANCIENT BUILDINGS.

with a view to their preservation.—Eventually the congress resolved to communicate through its secretary with the various county councils on the subject, calling their attention to the recently issued Blue book on the preservation of ancient monuments abroad, and also to the steps taken by the London County Council in the matter.—The reports of the Committee on Effigies and of the National Record Association were afterwards discussed.—A fine series of photographs of antiquities was exhibited by Sir Benjamin Stone, M.P., president of the National Photographic Record Association.—It was unanimously agreed that this Association had inaugurated a most valuable work, and that it was desirable that the local archæological societies should give the Association their hearty co-operation.

CARSHALTON COMPETITION.

DESIGNS FOR A CONVALESCENT FEVER HOSPITAL IN SURREY.

BY OUR OWN CRITIC.

THE ten designs sent in for this limited competition have been on view during the last fortnight at the offices of the Metropolitan Asylums Board. They were only shown to competitors and the Press. The three premiated designs, selected by Mr. Henry Currey, F.R.I.B.A., the assessor, were in the Board-room on the first floor, and the remaining seven relegated to a room in the basement! Such an arrangement is not to be commended, as it rendered comparison a laborious task, and the fact of none of the designs being hung added to the difficulties of an examination of their relative merits.

The conditions issued to the invited architects were very complete. Briefly, the scheme embraced provision for thirty isolated double cottages, each pair containing accommodation for twenty-four patients, and arranged in groups of five, so that each group should be under the control of one sub-matron. A double cottage had to provide separate and distinct accommodation, consisting of two dormitories of twelve beds each, allowing not less than 80 square feet and a lineal wall space of 8ft. per bed; two day-rooms, with 60ft. super floor space per patient; a room in each cottage for the "house mother," together with sculleries, safes for food, linen rooms, recesses for brooms, and bath and ablution rooms; also a separation ward, three w.c.'s, and a slop sink to each double cottage. To every group of five cottages, an adjacent building for the staff had to be provided, containing a sub-matron's bed and sitting room, sitting and mess-room for three night assistants, and accommodation for seven maid servants.

The isolation wards had to provide for eighty beds, forming a small hospital in itself. The administrative block, with rooms for medical officers, superintendent, dispensary, stores, kitchen block, and male and female quarters, had also to be arranged, as well as a laundry, houses for medical superintendent, steward, engineer, porter, and workshops.

The conditions do not appear to have stated whether the double cottages should be one or two-story buildings; consequently some show the accommodation on one floor and some on two. A single-story building is undoubtedly preferable in theory, but a few competitors have apparently adopted the double-story cottage as being more economical and practical on such a sloping site. A very considerable fall in places will make the levels difficult to manage when the buildings are spread over so large an area, and will probably necessitate a good deal of levelling. As the sub-soil is likely to be chalk, this might be a costly undertaking.

The crux of the problem was to plan the buildings so as to get the best aspects, to make

them a sufficient distance apart, and yet to arrange for economical service from the staff and administrative blocks. An axiom in hospital planning is to get as much "blow through" around the buildings as possible, and therefore to avoid "dead" corners where the air would be likely to stagnate; in a convalescent hospital these considerations are not so important, and it is evident that the assessor has considered them to be rather a disqualification than otherwise in making his awards, when applied to the arrangement of the double cottages. The main difference between the selected design by Messrs. Treadwell and Martin, and some other clever schemes is the southern aspect they give their day-rooms and airing courts, and the shelter they obtain for them from the north and east winds.

A rough sketch of Messrs. Treadwell and Martin's block plan is appended. The entrance and administrative blocks are on the north, and from the latter a covered way leads due south to the isolation wards, which are placed hospital fashion. Six lines of covered ways branch obliquely from the axial covered way, three on the east and three on the west, and each branch leads to its group of five double cottages on the south, and staff block on the north. An outline sketch of ground plan shows the arrangement of a double cottage. The separation ward is placed in the centre, the sculleries and day-rooms on either side, and the house-mother's rooms and linen closets at each end, the whole forming a block whose axis is east and west. The dormitories project on either side of this block towards the south; they are shown to be heated by means of central pedestal stoves, but we doubt if such an arrangement will admit of sufficient space between the beds in a ward only 20ft. wide. A covered verandah runs along the south side of day-rooms. The sanitary annexes, consisting of bath and ablutions rooms, w.c., and slop sink, form projections on the north, and are well disconnected. A lavatory and w.c. is placed off the covered way on the north of separation ward. Each house-mother's bedroom commands a dormitory. The administrative block, male and female servants' quarters, and stores and kitchen block, are placed in contiguous buildings to the north of site and in the centre, the medical superintendent's house and porter's lodge on the north-east, steward and engineer's cottages on the south-east, with laundry and workshops beyond.

The good points in Messrs. Treadwell and Martin's design are the excellent arrangement of cottages on the site, giving sunny aspect and shelter from north and east to the day-rooms and airing courts. The cottages are also well planned in themselves, and could be economically supervised. The elevations are simply treated, with a few "curly" brick gables, coped with brick and tile creasing, and the eaves have a good projection.

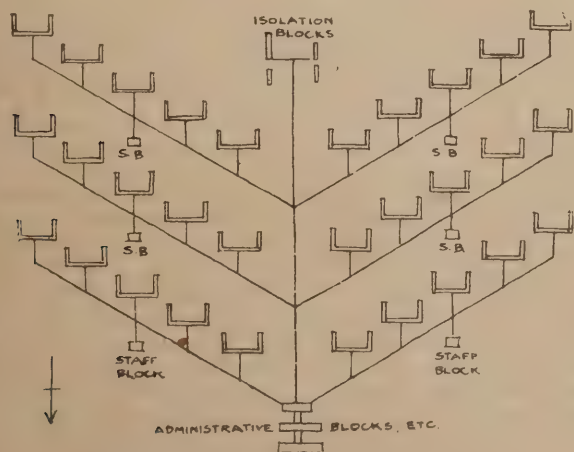
The defects noted in the scheme are the position of the isolation blocks on the south, from which the prevailing winds would be likely to carry infection to the cottages. The

administrative block is not well put together, and the position and planning of male and female quarters could be much improved. These are, however, minor defects that may be remedied before the contract drawings are made, and we agree with the assessor's award.

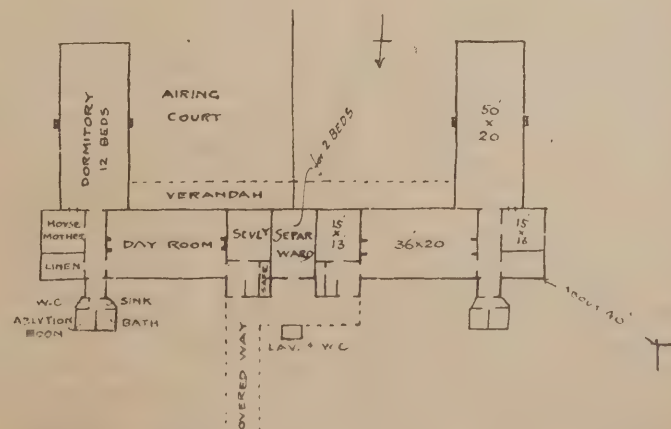
Messrs. Treadwell and Martin also submit an alternative scheme in which the double cottages are arranged on two floors: they form L-shaped buildings, the day-rooms on the ground floor and the dormitories above. The block plan is somewhat similar, but the covered ways from central corridor project at right angles east and west instead of obliquely. The scheme is not so good as the accepted design.

The second premiated set of plans are by Messrs. Pennington and Sons, who have arranged their cottages and staff blocks along four lines of covered ways from north-east to south-west, with radial covered ways from north to south. The cottages are single story buildings with dormitories in the centre, and day-rooms forming projecting wings on the south. The position of the house-mother's room is good, as it commands both the day-room and dormitory. The separation ward is a projection on the north, with entrances to it from each dormitory, not a good arrangement. Three w.c.'s and a sink are placed in a sanitary block on the south and are common to both cottages and the separation ward. A great objection to this scheme is that the distribution of cottages over so large an area would render the distance of service from the central kitchen and administrative block on the north very considerable. There would be an enormous length of covered way to traverse and the lines of communication are indirect. The arrangement of cottages and staff blocks on the curve give each set of four a slightly different aspect, varying from about south-east to due south, and some of these buildings appear to shield each other from the sun's rays. Altogether, we consider this scheme much inferior to the first design.

The third premiated design, by Messrs. Newman and Newman, shows a still more complicated block plan. The administrative buildings are placed on the west, with a covered way from them leading due east. Intersecting this and at right angles are eight covered ways, four on either side, the inner and outer ones terminating in semicircles. A garden, with a water tower in it, is arranged in the centre of the horseshoe, and radial lines of covered ways connect the inner and outer semicircles, thus dividing the horseshoe into eight spaces, four on either side of the central axis. The cottages and staff blocks are arranged in these spaces with their long axes north and south, the airing courts being on the west. The double cottages are single story buildings, and the arrangement of separation ward and sanitary annex show the same defects as in the second premiated design. We note that the block plans of both Messrs. Pennington and Sons and Messrs. Newman and Newman are on large strainers, much beyond the size laid down in the conditions.



ROUGH SKETCH OF BLOCK PLAN



A DOUBLE COTTAGE: SKETCH OF GROUND PLAN.

CARSHALTON CONVALESCENT HOSPITAL COMPETITION. THE SELECTED PLANS. BY MESSRS. TREADWELL AND MARTIN.

This enables them to show the whole site, and gives them an advantage over the other competitors.

Among the seven designs in the basement room we noticed three that bore the evidence of much thought and study. Their primal disqualification was no doubt the fact that they endeavoured to gain the greatest possible circulation of air around their cottages, and, consequently, sacrificed shelter and a southern aspect for their day-rooms and airing courts. Messrs. Greenaway and Smith submitted a careful and well thought out scheme, in many respects superior to the premiated designs. The block plan shows the administrative buildings to be on the west of site, with a service road running from it in an easterly direction. The double cottages are in groups at right angles to it on either side, each group consisting of six buildings arranged in two lines. Three cottages are placed in one line and two in another, with the staff block between. The axis of cottage blocks is slightly east of north and west of south, this aspect being generally recognised as giving the greatest amount of sun all round a building. The double cottages are on two floors, and appear to be well planned. The administrative block, isolation wards, servants' quarters, &c., compare favourably in arrangement with the selected design. The length of service roads seems to be shorter than any scheme submitted, measuring approximately from the kitchen block to the furthest cottage, 350yds., as against a distance of 500yds. in the first premiated design. The compact arrangement of the buildings and their position on the site, would make the levels of the ground more easy to treat in this design than in any of the others. Another two story design which deserves mention is that by Messrs. Thomas and Sons, who have hit upon an ingenious scheme. The administrative buildings are arranged on the north of site, with a central covered way running from them due south. Three lines of corridors branch from this axis at right angles to it and on either side, with five double cottages arranged along each. The cottages, planned in the form of parallelograms with their long axes north and south, are intersected centrally by the branch covered ways. The staff blocks are placed close to the central corridor. In this design more sanitary accommodation is provided than was asked for, no less than seven w.c.'s and two sink rooms being given to each double cottage. Mr. E. T. Hall's scheme also has many points to recommend it, though the buildings appear to be designed more for a fever hospital than a convalescent one.

A NEW children's ward has been added to the Rotherham Hospital.

THE handsome group of buildings at the corner of Cormont Road, Camberwell, is to be known as the Kennington Day Centre for Girl Pupil Teachers.

THE Bradford Association of Architects visited Pateley Bridge recently, and saw the extensive works in the valley in connection with the Bradford water supply.

EFFORTS are being made to raise money in order to add a tower and spire to Mithiam Church, in the place of those recently pulled down owing to their dangerous state.

AN indication of the value of space in the City of London may be found in the fact that the Company of Leathersellers, in its capacity of trustees of a certain charity, has arranged to grant a building lease for eighty years of a site in Gracechurch Street, with a frontage of 11ft., and a depth of 22ft. 6in., at a premium of £1000, and an annual rent of £130, the lessee undertaking to spend not less than £800 in building.

VISCOUNTESS PORTMAN has laid the foundation-stone of the Nurses' Home erected in connection with the Queen Charlotte's Hospital, Marylebone Road, at a cost of £12,000. The new Nurses' Home, which will take the place of the one compulsorily acquired by the Great Central Railway Company for their London terminus, will have accommodation for about 100 nurses and staff, and will also provide a residence for medical students.

School Buildings at Harrogate.

A NEW TECHNICAL INSTITUTE.

UP till the present moment, Harrogate has practically had to do without any properly recognised technical school, so far as an adequate building is concerned. New technical schools are now shortly to be commenced, the plans and designs of Mr. W. J. Morley, F.R.I.B.A., of Bradford and Harrogate, having been accepted in competition. The following is a description of the new school as it will be when finished: The building is designed so as to afford the greatest accommodation at the least possible cost. Owing to the peculiar nature of the site, the main entrance is placed at the north-east angle, thus leaving the two sides facing Haywra Crescent and Bower Road unbroken for the various rooms. The staircase is in a central position, well lighted, and conveniently placed for access to all departments. On the ground floor are arranged the committee-room two class-rooms (each to accommodate twenty-five students), for bookkeeping and shorthand, and a room which will form the nucleus of a museum. All these rooms face Haywra Crescent. At the back is the chemical laboratory (for twenty students), with a lecture-room adjoining, and also a balance-room and chemical store. A large manual room for

WOODWORK AND WOOD-CARVING,

to hold thirty students, is placed at the south-west corner, and at the north-west, facing Bower Road, is the room for cookery classes, with a scullery and small store-room attached. A cloak-room and ample lavatory accommodation, separate for each sex, are provided, well lighted and ventilated. On the first floor are arranged the art rooms, comprising an antique and life room, and a room for the head master, both of which are required by the Science and Art Department to face the north, and are shown with a frontage to Bower Road. The building construction and clay-modelling rooms have a frontage to Haywra Crescent, as also has a class-room for dressmaking for twenty students. The elementary art room, lecture room, and painting room (the latter facing Bower Road) are placed at the back, and are en suite, so as to be easily converted into one large room, if required. In the basement are provided a laundry for twenty-five practical students, rooms for the caretaker, heating apparatus, coal and other stores. The various rooms are planned with due regard to their uses, and have been kept separate as far as possible for each sex. The exterior of the building is of a simple character, in the Renaissance style of Architecture. A portion of the site facing Haywra Crescent is reserved for future extension. The fittings throughout will be of the most modern and approved type. In the corridors will be tiles of simple design, and dados of glazed bricks or pitch-pine boarding will be utilised in most of the rooms.

THE VENTILATION

will be carefully considered, and the corridors and rooms throughout well lighted. The report of the assessors (Messrs. Woodhouse and Willoughby) contained the following remarks:—"In accordance with your instructions, we have made a thorough and exhaustive examination of the several excellent schemes submitted in competition. We have no hesitation in awarding the set of drawings under motto 'Technical' the honourable position of first place. The author of 'Technical' has carefully borne in mind throughout the preparation of his scheme the most important question of cost, and, although, in our opinion, no scheme submitted can be satisfactorily erected under £5000, yet this design, being extremely economical both in planning and elevations, is one of the least costly submitted. The proportions of the rooms generally are good. The lighting throughout all floors is excellent, including the staircase—a very desirable point. The conveniences are well placed over one another, and with good 'cross' ventilation. The planning throughout is constructionally good, walls being over walls, and the noisy rooms isolated from the quiet ones, apart from sex."

A VILLAGE TEMPLE.

MONUMENT OF LOCAL HANDCRAFT.

MR. G. F. WATTS, R.A., has presented to the village of Compton More the beautiful burial chapel for the use of the village which he and his wife, with the help of Mr. George Redmayne, have designed, and which they have elaborately decorated by the hands of the Surrey villagers whom they have themselves trained to the work. The effect of this gift will stimulate others similarly gifted to prove to their day that there is a dormant sense of beauty in the hearts of English country villagers which can be awakened and put into action. It will, perhaps, arouse the churches of the land to believe that the hands and hearts of the villagers, if they can be trained to such power as they possess of

EXPRESSION IN WOOD OR METAL,

or stone or clay, are glad to bring their labour and their love as a free-will offering. But, most of all, that little burial ground chapel at Compton More will stand as a witness of how much of happy communion and good fellowship can be established between the simplest peasant and the most cultivated minds of our day, and will encourage those who live and work as artists in country neighbourhoods to bring their lives into nearer touch with their humble neighbours and to share their gifts with them. The work at Compton More is an object lesson for the whole land of what patience and love can do to call forth and stimulate the artistic sense which is in each one of us. When a burial chapel was desired for the new ground it was determined that an attempt should be made to enlist the villagers themselves in the work. The spirit of the fourteenth century was to be revived. A School of Art was to be called into being, and the master or, as in this case, the mistress and her scholars were to accomplish this work. This Mrs. G. F. Watts has literally done. For several successive winters she has trained a village class at her home, near Guildford,

TO MOULD AND WORK IN CLAY.

She and her husband have furnished designs and actively superintended the classes. The result has been that every house in the village has had individual interest in the progress of the work. The burial-ground chapel is not taken from heaven ready-made, but is a creation of their own hearts and hands. One cannot enter the door without finding how all the local industries have been employed. Those beautiful iron hinges and quaint locks, which contrast with the elaborate wood-carving, were designed by the well-known North-country architect, Mr. George Redmayne, but they were wrought at the village anvil by the village blacksmith. Nor is this little temple to Death only a monument of local handicraft and of the worth of the home arts and industries movement; it is a witness of the faith of the designers. The mystic of symbolism that decorates the chapel is a glorious book of life and not a joyless chapter of death, well understood by the people. As the workers worked the symbols were made plain to them. The work of their hands became a working of their brains.

THE opening of the enlarged United Methodist College buildings at Manchester will take place in September.

THE Duke of Devonshire, presiding in his capacity of Mayor of Eastbourne, at a meeting of the Eastbourne Town Council, stated, with reference to the proceedings of the Technical Instruction Committee of the Council, that he had been long aware that the corporation had been anxious to obtain a site for the erection of a building for technical instruction purposes and for a free library. A site had become available on his estate which he would have great pleasure in offering to the corporation as some memorial of his period as mayor of that borough. The value of the site, which would shortly have a double frontage, was estimated to be between £5000 and £5500.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

July 13th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Admiralty has determined to alter its original idea of spending only a few thousand pounds for the erection of a block of buildings at the Royal Naval Hospital, Stonehouse, for the reception of patients afflicted with infectious diseases, and purpose now to spend about £15,000 on this object. A site for the building of the new block has been selected at the southern extremity of the present Naval Hospital, and the work is to be commenced forthwith.

MUCH interest has been excited in Leicester by the discovery of two additional tessellated Roman pavements in one of the most ancient quarters of the borough. They were laid bare at a depth of about 8ft. One measures 13ft. by 10ft., and the other 12ft. by 7ft., and both are in a remarkable state of preservation. Both are of really beautiful design, and in this respect resemble others which had been previously discovered. In the larger portion there is the representation of a peacock with spread tail. It is known that the old Roman forum stood here, and it is accordingly believed that the pavements originally belonged to the Governor's residence or to the Temple of Janus, which was situated in the same neighbourhood. The newly-discovered pavements will be preserved intact in the position in which they have been found.

A VIGOROUS effort is to be made to preserve the old parish church of Great Hampden, a building which, dating from the fourteenth century, and linked so closely with the memory of the patriot Hampden, boasts associations that are well described as of national interest. The bulk of the sum—£440—already subscribed for the purpose of the restoration has already been expended. Hampden house itself is a spot of great historical interest. The earliest part dates from the reign of King John, and one of the features of the forthcoming bazaar will be the exhibition of the brick parlour in which John Hampden was arrested for refusing to pay shipmoney.

AFTER being closed for six months, the church at Stratford-on-Avon is to be reopened to-morrow (Thursday). The Committee which has superintended the work started with the intention of improving the organ, renovating the interior of the nave, and rebuilding the old vestry. These improvements, it was estimated, would cost about £5000. As the amount of money necessary was not obtained, a great deal of the work contemplated was not attempted. The organ has been improved, and a warming apparatus has been introduced. The floor has been relaid, and a portion of the oak benches needed have been provided. The cost of these improvements has amounted to

£3000. The result is that the church will be reopened with only half of the seats provided, without a pulpit, and without a vestry.

THE London County Council, without a single dissentient vote, has agreed to a great Metropolitan improvement, which has been long expected, and has become an absolute necessity for the ease and convenience of our London street traffic. The idea, of course, of a great thoroughfare from North to South is no new one; it was originally suggested, the Daily Telegraph believes, by the Metropolitan Board, and has been two or three times already under the consideration of the Council. But of all the plans submitted, that of Mr. Shaw Lefevre is, without doubt, the finest and most statesmanlike, the most original in design, and the most extensive and far-reaching in execution. Beginning just east of the Holborn Restaurant, in High Holborn, the new street, which is to be a boulevard 100ft. wide, comes in a direct line southward to a point immediately behind St. Mary-le-Strand, where it sweeps right and left into a fine crescent, one end resting on Wellington Street, the other leading directly to the Church of St. Clement Danes. It is no argument against the scheme to say that as much necessity exists for a new thoroughfare from East to West as for this proposed boulevard from North to South. Everyone knows that the difficulties to be encountered are far greater, and, after all, the execution of one design does not in any way exclude the consideration of the other.

THE advantages of the thoroughfare will be quite as much ornamental as material. We shall have from Holborn to the Strand a high road which will stand comparison with the magnificent streets of foreign capitals, while a vast number of rookeries and tortuous slums will be swept away, affording shelter at present to the lowest and most degraded of our urban population. It is worthy of notice that the scheme will leave the Lyceum Theatre in its present site, fronting one end of the new crescent; but the Gaiety, the Globe, and the Olympic are all to disappear, giving room for better and more commodious structures hereafter. On every ground the Council is to be congratulated on the decision at which they have arrived, and if they have shown from time to time a certain slackness in undertaking great and radical improvements in London, they have now nobly redeemed their reputation by consulting alike the comforts and conveniences of traffic and the beauty and dignity of our Metropolis.

SOME interesting additions have been made to the National Art Gallery. Sir Charles Tennant having presented the portrait of Mr. Gladstone by Sir John Millais to the nation, it may now be seen in Room 21 in the English wing of the gallery. The collection of works of the Milanese School, now being exhibited at the Burlington Fine Arts Club, contains a portrait said to be of Francesco Archinto, by Ambrogio de Prodis, and this has been purchased for the national collection, and will be placed in Room 9. Pictures, including a sketch portrait of Lady Hamilton, by George Romney, will be added to the gallery through the will of the late General John Julius Johnstone, and Colonel the Hon. F. W. Stopford has presented a portrait by Romney of Lady Craven, afterwards the Margravine of Anspach. These will be placed in Rooms 18 and 20 of the English wing.

THE Royal Exchange will also receive some important Art additions in the course of the next few months. Three pictures will be added to the three vacant panels, and all are of great historical interest. Mr. Carl Meyer gives a painting by Mr. E. Glatze, depicting the offering of the Crown of England to Richard III. at Baynard's Castle. This gift has been approved by Sir Edward Poynter and Mr. Alma Tadema, R.A. Mr. Stanhope Forbes, A.R.A., is painting a picture representing a scene from the Great Fire of London, and this will be the gift of the Sun Fire Office. The third picture, to be presented by the Mercers'

Company, depicts the opening of the Royal Exchange by Queen Elizabeth, and is being painted by Mr. Ernest Crofts, R.A.

A NEW screen has been erected under the tower arch of St. John Baptist Church, Margate. It is executed in teak, is a very massive erection, one which will, in point of stability, occupy its present position for centuries to come. It consists of a central archway, with an arrangement of traceried work on either side, forming three divisions. The head is a massive piece of timber in one length, the carving on which consists of thornes and bells—the former suggestive of the name of the deceased in whose memory it is erected, and the latter suggestive of the position the screen occupies. The top is surmounted by battlements, cut in the solid. The style of architecture of the screen is Perpendicular. The designs are by Mr. R. Dalby Reeve.

A NEW font cover has also been installed in St. John Baptist Church, Margate. The cover is rather flat in shape. On the top is carved a large cross, entwined with which are lilies of large size, emblematical of purity. The whole is richly moulded, and a border of conventionalised lilies runs round the same.

THE forty-seventh annual meeting of the Birkbeck Building Society was held last week at the offices, 29 and 30, Southampton Buildings, Chancery Lane. The report adopted states that during the financial year just closed the total receipts from all sources, taken with the disbursements, discloses the fact that the annual turnover has amounted to £37,488,736, being a daily average of upwards of £120,000 for every business day that the office has been opened throughout the year. The investments now exceed ten millions—£10,778,675—and the total liabilities on subscriptions and deposits also exceed ten millions; whilst the balance of assets in excess of liabilities amounts to £431,984. The amount received for subscriptions during the year has reached the sum of £266,511. After allowing for withdrawals, the amount standing to the credit of investing members at the close of the year is £888,896, and the balance of deposits to £9,457,794, amounting together to £10,346,691, an increase over the past year of £1,233,236. The investments in convertible securities and the cash in hand have been augmented to the extent of £1,212,079, and now amount to £3,213,785, of which £1,542,652 is invested in Consols and other Government securities, and upwards of two and a half millions—£2,652,483—are inscribed in the books of the Governor and Company of the Bank of England, and £619,206 cash at bankers. The number of members who have joined the Birkbeck during the past year is 2924. In the banking department 2116 current accounts and 7377 deposit accounts have been opened—in all, 12,417 new accounts, being at the rate of 1034 per month. The register of shareholders now contains the names of 13,601 members, and besides these there are 19,160 current accounts and 52,333 deposit accounts, thus making the total of members and depositors 85,094—the highest number ever attained. The number of shares in existence at the close of the year was 69,611, which is also the highest number yet reached. Since its establishment the Society has returned to the shareholders and depositors more than one hundred and ninety-four millions (£194,672,808), the whole amount having been repaid upon demand. The amount advanced to borrowers has been £3,559,256. The amount of interest and bonus paid to investors and depositors is upwards of three millions sterling, the exact figures being £3,322,147, and the invested funds now exceed ten millions sterling—£10,778,675.

THERE is every reason to hope that success may attend the effort which is being made by a group of friends and admirers of Sir Edward Burne-Jones to raise a fund sufficient to secure one of his most representative works for presentation to the National Gallery. No better way of commemorating a great artist could be devised. But it is most desirable that, in

addition to a picture, a really comprehensive set of his sketches and studies should be acquired. One of the most remarkable characteristics of his artistic method was his extraordinary care in preliminaries; and no representation of him would be complete which did not emphasise the almost devotional preparation that preceded his labour on an important work. At the Tate Gallery there are many rooms unsuitable for the display of large pictures which could be most instructively filled with the studies of our greater artists.

THE arrangements for lighting Balmoral Castle by electricity are now being carried into effect, and during H. R. Majesty's recent stay there considerable progress was made with the estate work in connection therewith. Half a mile of iron pipes of large diameter has been laid for bringing the water from the upper portion of the Gelderburn to the site of the turbine house, which is situated near the old sawmill, about a mile and a quarter from the Castle. In some places, ways 12ft. deep had to be blasted through the rock for laying the pipes. Provision is being made for two Gilkes vortex turbines, which, with a fall of nearly 80ft., will give 80 horse-power combined. This power will be utilized in driving the dynamos for charging a large battery of accumulators at the Castle, and also for lighting the lamps direct. The current will be transmitted by large cables laid underground all the way. The electric light will at first be limited to the Queen's private apartments, the ball-room, and a few of the principal rooms in the castle, and the installation is expected to be in working order by the time her Majesty returns to the north next month. Eventually, more than 600 lights will be installed in the castle alone, but if electric lighting is extended to the stables and outbuildings about 1000 lights will be required. The whole of the work, with the exception of fixing the turbines, is being carried out by the commissioners' staff at Balmoral, assisted by some of the household electricians, under the direction of Mr. William Massey, of Twyford.

AN ingenious inventor some years back hit upon the idea of utilising cork as a substitute for wood or asphalt in the paving of our streets. Wood and asphalt are both apt to be slippery in dirty weather; cork, on the other hand, always affords a firm foothold for man and beast alike, and is, comparatively speaking, noiseless. The Improved Cork Paving Company gave practical demonstration of the value of the new material last week at Liverpool Street Station. Here the paving has been tried by the Great Eastern Railway Company for the past six years, with such good results that it is gradually being used in every direction there—no mean testimonial, this, considering the heavy traffic which rolls in and out of the great terminus. The material itself consists of cork ground very small, mixed with a description of bitumen, and put under hydraulic pressure of sixty pounds to the inch. It is claimed for it that, in consequence of its durability, elasticity, and non-absorbent qualities, it makes a perfectly sanitary pavement. There is little doubt that our London horses would give it a decidedly grateful welcome, and wherever it has been tried by various vestries, railway companies, and the like, it appears to have given invariable satisfaction.

MUCH disappointment will be felt by admirers of the Brontës at the utter lack of interest shown by the public at the sale of relics and mementoes of the celebrated sisters, in Sotheby's Rooms, on Saturday week. At first the auctioneer offered the entire collection—comprising 107 items—in one lot, but not a single bid was forthcoming. He accordingly proceeded to deal with the articles separately, and even then the first half-dozen lots could find no purchasers. These were all drawings by Charlotte Brontë, most of them being neglected because they were unsigned. The first lot that actually found a buyer was a simple water-colour of flowers by Charlotte Brontë (signed), which fetched 7s. Nearly a

third of the whole collection failed to elicit any bidding, one of the lots being, curiously enough, the most important item in the catalogue, the portrait in oils of Charlotte Brontë, by J. H. Thompson.

MILLAIS and Burne-Jones have been names to conjure with in the auction-room this season, and on Saturday week at Christie's an endeavour was made to put a little life into a miscellaneous sale by the inclusion of "remaining works" of the former master and the four pictures by Burne-Jones representing the story of Pygmalion. Some of the Millais examples had appeared before at auction last year, and their reappearance showed that the reserve prices had not been exceeded on that occasion. But even the sum of 1700 guineas obtained for "The Ruling Passion" or "The Ornithologist" in 1897 was not approached on Saturday, the picture being announced as falling to Mr. Marshall for 850 guineas. "Time," another of Millais' examples, reached 260 guineas, as against £441 last year. Both these canvases are good specimens of the late President's art, and their failure to maintain their previous prices must be ascribed to the present lackadaisical state of the picture market. The Burne-Jones quartet, entitled "The Heart Desires," "The Hand Refrains," "The Godhead Fires," "The Soul Attains," do not rank among the painter's highest achievements, and when they appeared in the Craven sale, 1895, did not go beyond £3675. On Saturday week the name of the buyer was given as Mr. Seymour for 2800 guineas. The spiritless nature of the sale was further shown in the want of interest caused by the submission of Mr. Stanhope Forbes's "New Calf," exhibited at the Royal Academy two years ago, and the property of Mr. Daniel Delius, of Bradford. After wearily reaching 400 guineas, the picture fell to Mr. Parkins. A certain enthusiasm greeted Corot's "La Chevière," which went at 1600 guineas to Mr. Obach.

UP to the present the City Corporation has taken no part in the agitation that has been set on foot with the object of inducing the London County Council to modify their proposals in reference to fire protection. It is suggested that in every factory a stone staircase should be provided, so as to ensure the safety of the workpeople in the event of a sudden outbreak of fire. That such a precaution should be taken in the case of a warehouse that is about to be built may be very proper, but it seems very hard on the owners or lessees of existing buildings that at a moment's notice they should be called upon to incur the expense attendant upon reconstruction.

A HANDSOME block of buildings, forming a valuable additional wing of the Jews' Free School, in Spitalfields, was opened a week ago. The structure represents an expenditure of close upon £20,000. Designed by Mr. N. S. Joseph, the new wing will add greatly to the accommodation which the school affords. There will be a technical school and a laboratory. The technical school, the use of which is not to be restricted to Jewish children, will, it is contended, be of great use to the latter in preparing them for trades which have hitherto been practically inaccessible to them.

ONE of the largest undertakings in South America since the Panama Canal dissected the Isthmus is the Mexican Canal, which has just been completed by the engineering firm of Sir Weetman Pearson and Sons, of London. The project has found employment for several thousand workmen daily during the past eight years, and it is estimated that the expenditure exceeds 20,000,000 dollars since the contract was allotted to the English firm. The earliest inception of the Mexican Canal is traced by Aztec records to a period which is antecedent by half a century to the discovery of America in 1492 by Christopher Columbus. Lack of pecuniary resources has rendered abortive the previous attempts, and it has remained for the ingenuity of Englishmen to evolve success out of the difficulties of the enterprise. Mr. Colls, who has been controlling the work as chief engineer, says:—"The canal starts

from the San Lazaro Station on the Hidalgo Railway, and encircles the east of the Guadalupe Mountains, flowing through Lake Texcoco into a tunnel $6\frac{1}{2}$ miles long, from which it drains into the Mexican Gulf. The entire length is about forty miles, and it drains the whole Valley of Mexico. It will be of great commercial value to the Valley of Mexico, and tends to make it even more healthy than it is at present. We had over 3000 natives on the excavations, the remainder being Americans and English. The canal is 70ft. deep, and we had to build five aqueducts for the rivers in the valley, four iron railway bridges, and fourteen vehicular bridges. To carry out the work we used five long-shoot bucket-dredgers with an excavating capacity of 18,000 metres of sand and rock a week each, and for the canal dug out 21,000,000 metres. Before the canal was established the lakes in the Valley were always flooding the city, but I think we have remedied that misfortune."

"BEING a keen antiquary, when Roman subjects are concerned," writes a correspondent, "I have been to Uphall in the hope of finding evidence of the camp there proving to be Roman in spite of the unfavourable opinion of Smart Lethieullier. I knew the reason assigned by him, that the area of 48 acres was too large for a Roman camp, to be unfounded, for the normal Roman Consular camp, to hold two legions and the usual complement of allies, was nearly twice that size, as any of your readers may see by referring to the article 'Castræ' in Smith's Roman Antiquities, of which plans are given. I believe the camp at Uphall, which I examined to-day, and of the western end of which, resting on the river Roding, I took a photograph, to be Roman. But it would only have been large enough to hold two Roman legions without the contingent of Socii, who were not generally present in Britain, as far as I know."

By promoting Mr. E. A. Abbey to the rank of Academician, after less than three years' probation as an Associate, the Academy has with great promptitude recognised the claims of this artist to be reckoned among the best historical painters of the day. That Mr. Abbey would be elected was generally regarded as extremely probable. His admirable pictures have during the brief period of his practice as a painter in oils gained for him extraordinary appreciation, both from the public and the members of his profession, and he has taken, almost without a dissenting voice, a place in modern Art which he can scarcely be said to share with anyone else. But even if he had never painted a picture in his life, he would well have earned admission to the Academy by the superlative quality of his work in black and white. As an illustrator he is without a rival, and it is pleasant to think that he should represent on the Academy roll this important branch of Art practice.

THE old Norman castle of Ludgershall once sheltered the Empress Maude when flying from the victorious Stephen, and was visited by King John on his way to Ruynymede in 1215. The manor estate, on which the ruins of the castle are still to be seen, has been sold by auction at Andover by Messrs. Mabbett and Edge. The estate is about 670 acres in extent, and adjoins the War Office lands.

SOME difficulty has been experienced in Swansea during recent years in procuring freehold land for building purposes, but this has now been surmounted. A most eligible estate has been purchased by the Coedsaeson Estate Co. Ltd., of which Mr. H. C. Portsmouth is architect and surveyor. The property comprises an area of about 21 acres, and is situated in the west end of Swansea, overlooking the grounds of Singleton and Parkwern, and commanding magnificent views of Swansea Bay, the Bristol Channel, and the Devon and Somerset coasts. It is proposed to lay out the estate in building plots of suitable dimensions for detached and semi-detached houses, thus securing a nice residential district, and a plan has been prepared which, if carried out, will do much to improve the residential part of Swansea.

MODELLING: ITS RELATION TO SCULPTURE AND THE INDUSTRIAL ARTS.*

BY RICHARD FERRIS.

MODELLING is the beginning of all things in the sculptor's art. For in the plastic and obedient clay, the idea can be thoughtfully conceived and developed with all the loving skill which the artist has at his command. It is in this substance that the sculptor takes form, and expresses, in a tangible reality, the conception that had been floating in his mind. When this has been accomplished, although in such a perishable form, the translation of the model into another and more permanent material is a task which requires rather finely developed mechanical skill than artistic ability. The first efforts in representing form in clay were doubtless made when primitive man, moved by some artistic impulse, traced

WITH RUDE AND UNCULTURED HAND

the shape of some animal or implement of war on the soft, unbaked clay of his cups or domestic vessels. From such early endeavours were developed, through the course of time, the perfection of the Greek sculptors, with their nobly ideal forms, abstracted from all accident and individuality. They did not give the rugged mystery of nature, but sought rather to create an ideal of what they considered nature ought to be, and this ideal once established, was adhered to most rigidly. In another school of sculpture was the work of the early masters of the Renaissance, who did not represent nature in the idealistic form, as used by the Greeks, but rather relied upon suggestiveness and vagueness, and its accompanying naturalism. Their reward was a nearness to natural truth which the Greeks did not dream of. They had no preconceived ideal forms to portray, but could wander at will among the accidental graces and half awkward beauties of real life. The historic development of the art, being

AN OFT TOLD TALE,

the general knowledge of which must be familiar to most of us, I do not intend to review, but rather to confine myself more closely to modelling and its relation to the sculptor's craft and the industrial arts of the present day, and these more particularly in connection with Architecture, the mighty mother of all the arts. Among the public of the present day a very general ignorance prevails regarding the work of a sculptor. The greater mass of the people take for granted that a sculptor is a man who makes statues, and perhaps tombstones, and that possibly the same man who makes the tombstones gets up on a scaffold in front of a building and chisels away, in a haphazard fashion, until he has produced a figure or a piece of ornament such as is finally revealed to view. An instance which came under my notice was that of a gentleman, for whom we were doing some work, calling at the studio accompanied by a friend, who, after looking at the various pieces of work lying about, turned to me with a slightly bewildered air, and remarked that he always thought these things were stamped. We can hardly wonder after all at this state of matters, as it is an art that the public unfortunately care very little about.

THE WORK OF A SCULPTOR

is at the present day divided into various classes, some being engaged in the production of subject pieces of an ideal nature—statues, portrait busts, etc. Others, again, find their principal occupation in decorative work of various kinds, of a more or less commercial nature. And while it follows that, judged as an artist, the author of a grandly idealistic figure composition of pure sculpture stands head and shoulders above his more humble brother in the craft, who principally makes a study of commercial work, still, it by no means follows that the greater includes the less, that is to say, that the author of the masterpiece has seldom made it a part of his studies

to work with a technical knowledge of the requirements of the various decorative arts.

REPRODUCTIONS

from modelled work may be divided into two classes, namely, those which are carved, and, secondly, those which are cast. The first point which I wish to raise is the necessity for the use of models in all carved work, excepting, of course, those in which the work is of a very commonplace or mechanical nature. Many architects believe in this method, and with good reason. It is acknowledged by all that the exigencies of the present day demand a certain division in all labour. Whether the principle is a good one or not, we will not touch on. This principle applies, nowadays at least, to modelling in connection with decorative work. For instance, a man may be a very excellent carver, and yet not be strong in original design; in fact, he need not be, and, as a general rule, is not found competent to design the filling up of a space, except by the use of the more common traditional forms of ornament. A modeller may have this skill; indeed, his training fits him for it; and his material is more suitable for designing in, but may not have the power of arranging the general scheme of decoration of a building. At this juncture the skill of the architect asserts itself, and perhaps without troubling very much about the

MINOR MATTERS OF DETAIL,

having the general masses and proportions of his buildings in his mind as no one else can have, can arrange and carry out to a successful completion a scheme of decoration suitable and appropriate to the class of building he may have on hand. I will touch on the capacities of the modeller's material as a medium of design. Clay, being a most plastic substance, is, in the hands of a skilful workman, a most ready medium of expressing a thought, and demonstrating its artistic effect on whatever the subject on hand may be with great facility. It is most essentially a material to design in, to clothe your thoughts in form, and, if need be, to give most rapid expression to any idea that may occur. I have frequently had experience of work, which had been built up to the rough sketch of the architect, gradually changing in design, and as it continued to develop each rough mass and corresponding shadow would suggest some new and better conception of its finality. There can be no doubt that here we have the best way whereby studied design and harmonious treatment can be obtained. Because in a plastic substance, such as this, we have an opportunity of altering, experimenting, trying this, that, or the other form, and composition of line, of indulging in

LITTLE QUIANT CONCEITS

that occur almost accidentally, and gradually developing the design until it is satisfactory to all interested in the same. The reason for arriving at this conclusion is, that in modelling there is brought into operation an exactly opposite process to that of carving. In modelling we have a building-up with every facility for change. Whereas in carving there is a cutting out with one alternative. A carver working direct into his material without the aid of a model must begin with a fixed idea as to what he is going to make and when it is produced there it must remain without any opportunity for alteration, except in a very minor degree, which will very little affect the general appearance and proportion of the whole. A modeller, on the other hand, often begins his operations with but a hazy idea in his mind of what the design will ultimately become, excepting the knowledge that it will be treated as a figure composition or a piece of ornament, and in either circumstance, with the style and general instructions he may have received well in his mind, and as the work of building up proceeds, the perfectness of the idea or conception of the subject grows gradually till the finishing point is reached. During the course of the

MANIPULATION OF THE CLAY,

ideas do and will suggest themselves, thus providing the opportunity, if desired, for the

original scheme to be elaborated, and carefully thought over until the design is finally evolved in perfect fulness. As I have said, a carver in either wood or stone commences his operations in his hard material, working probably from a carefully executed drawing, which, as a rule, is adhered to in the most rigid manner. And here I would submit for your consideration the fact that a drawing, even made by a most skilful draughtsman, must and does always, in a certain degree, come short in the expression of the subject's finality, and more especially is this the case in relation to carved work. No matter how well it may be executed, a drawing will sometimes fail in expressing to the carver the exact meaning the designer may have had in his mind. I remember an architect telling of an experience which he had of a carver totally misunderstanding his intention. The architect in question intended to use two capitals, each of different design, and with this purpose made a drawing showing two half capitals, each being different. When he called to see the work he was astonished to find that the carver had, in an ingenious fashion, utilised the

TWO DESIGNS IN ONE CAPITAL,

one design on the left-hand side of the centre line and the other on the right. This, of course, is a very extreme case, and rather comical than otherwise. But without going the length of a mistake of this kind, I hold that a drawing will fall short of the influence and distinctness of impression conveyed to and made on the carver's mind of every detail connected with his subject when working in the presence of a model. The same before passing from the modeller's hands, having given every indication of completeness to the mind in which was formed the original conception of the idea. Nevertheless, do not misunderstand me. I by no means have an objection to a drawing. It holds the most important place in connection with the industrial arts, and is the only way by which a designer can communicate his ideas to the craftsman. The contention is rather on the place assigned to the drawing—in its place, if I may so speak, between the draughtsman and the permanent material. Therefore, we cannot but conclude that before a design is carved in stone, wood, or marble, it certainly ought to be tried in a plastic material, if only for the sake of experiment. Hereby all the best parts of the design can be manifested, there the lights and shades are observed, and

THE MOST DELICATE DETAILS

can be expressed in an adequate manner when the design is produced in such a materialistic form as is afforded by modelling. By this means we have the additional advantage of two minds working together on the same idea, the author guiding and directing the modeller, and the criticism coming perhaps from both, which must all tend to the final production of more perfect work. Taking into consideration the arguments I have used, I would urge upon all interested the necessity of using models on all occasions where carved work is required. By this means there is no doubt better results will be obtained. The idea worked out primarily in the clay cannot fail to give a greater degree of satisfaction to those interested in the final production. We take a craftsman out of his sphere when we request a carver to produce a work of art right off in a hard substance without the aid of a model. Such a request involves considerable risk in the production, as from the first click of his mallet and chisel to the last finishing touch there is permanency to his work. There is very little scope for alteration, or opportunity for improvement, should even the idea suggest itself during the process; the material is chiselled away, and there it must remain, for good or bad. The point is that in all such work an opportunity ought to be afforded for

THE PLAY OF THE IMAGINATION

on the subject in a less stubborn material than stone or wood. It is at this juncture when modelling steps in, and gives to the author of the design all the advantages I have named, and to the carver a reliable model to work by, and which, when produced in stone

* A paper read before the Glasgow Architectural Association.

or wood, affords less risk of disappointment. Another point to consider is the actual economy of this method of working, as by this means the carver is enabled to proceed more rapidly with his work, cutting direct into the stone without hesitation, so that the small amount expended on the model is fully repaid by the more rapid execution in stone. To enumerate the various crafts which derive assistance from the modeller would be nearly impossible. I have modelled in my own experience every conceivable material, from the most delicate work for the gold and silversmith to the pattern for a humble cake of chocolate. The training and

TUITION OF A MODELLER

ought to be such as would enable him to work with confidence in such a manner as would suit the technical requirements of the various materials for which he may be called upon to make models for. It is obvious that the style of ornament or treatment which might be very beautiful when completed in marble would have comparatively little effect were it produced in cast-iron. The same judgment and discrimination must be brought into use in considering the suitability of a design for the position it is intended to occupy and the point of view from which it has to be seen. For instance, the delicacy of treatment and amount of detail which might be used with good effect on a frieze intended for the decoration of a drawing-room, would be entirely lost, and worse than useless, if used on a stone frieze on the exterior of a building 50ft. or 60ft. above the ground. A great point to consider is the design from a utilitarian point of view—that is to say, that it shall be designed to exactly suit the technical requirements of the material in which it will finally be produced, and to endeavour to

DECORATE IN THE MOST APPROPRIATE MANNER

the object or building destined for its reception. Sir Edward Poynter gives an example, in one of his lectures on Art, of a most inappropriate kind of decoration, which illustrates the present point so well that I might be excused if I give it here in a condensed form. Mr. Poynter goes on to say, "that a bunch of roses or a lapdog painted in a slovenly way on the black japan of a coal-scuttle is as inappropriate a piece of decoration as ever was devised, and would spoil, instead of improving, the best contrived coal-scuttle." It is not difficult to trace the source of this particularly bad form of decoration; it arises entirely from a vulgar feeling, hidden in the depths of our hearts, that there is something rather commonplace in a coal-scuttle, which makes it suitable enough for a kitchen but out of place in a drawing-room, hence the introduction of the roses and lapdog, varied occasionally by a picture of a church by moonlight, was considered to give great elegance to what otherwise would be rather an objectionable piece of furniture. While this illustration of Mr. Poynter's is

FROM THE PICTORIAL POINT OF VIEW,

there are many examples of as incongruous design of a sculptural nature. For instance, I have noticed a truss, presumably supporting a heavy weight, made up entirely of foliage, flowers, and birds, not used in conventional forms but treated in a naturalistic manner; the error being, that instead of decorating the truss or corbel with foliage, which would be quite good in its way, that the support was composed entirely of ornament, and no attempt made to give a structural form which would at least have the appearance of being able to carry a weight. But I think, gentlemen, you will agree with me in saying that we have arrived at a time in which there is comparatively little of this incongruous design shown in our buildings or articles of furniture, and that we are striving after a stronger and more appropriate style of decoration, a change for the better which the younger school of draughtsman in Glasgow have been by no means backward in making their mark. To come to those materials which are reproduced from modelled work by the operation of casting, within the range of which are included the various metals, plaster,

and terra-cotta, it is worthy of note here the comparative scarcity of terra-cotta used in Scotland as a building or decorative material. I am aware that this is a stone country, and that it is by no means rich in deposits of finely coloured clays, and as a natural consequence our potters are

HARDLY CAPABLE OF TURNING OUT ARCHITECTURAL WORK.

Indeed, it is a matter of difficulty to get a small piece of original work fired, a process which in Glasgow, at least, is generally attended with no small risk. Personally I have been very fortunate in experiences of this kind, as out of a large number of works I have had fired, I think, only one piece was injured. I feel rather strongly in this matter, as it is the only way that a model in clay, without going through the operation of casting, can be made permanent and unperishable, and the result when successful is very beautiful, every touch being retained with a degree of perfection which the finest casting can never have. The durability of terra-cotta is unquestioned; the relics of past ages prove it beyond a doubt; and that fact being established, we will look briefly at its artistic qualities, which cannot be over-estimated. I can imagine no finer form of decoration, especially for a country house, even used in combination with stone, than

TERRA-COTTA,

used in a judicious way. There is the variety of colour that can be obtained from various clays which can be used with most harmonious effect in relation to the general colour scheme of the building. I would suggest, in order to get the best results from decorative work in terra-cotta, that the original be used in position on the building—reproductions of course are easily made if desired, but even the operation of casting requires a certain amount of filling up and consequent loss of undercutting, which will to some extent rob the castings of a little of the spirit and freshness which is so typical of original modelled work; in fact, a dashing and vigorous effect can be got in clay, which cannot be equalled by any carving, however excellent. I have mentioned the difficulties that at present attend the production of work of this kind; but I think if it was encouraged in a slight degree, the means would speedily be found to overcome these difficulties. Now as regards the relation of modelling to

DECORATIVE WORK IN PLASTER.

This material possesses exceptional properties for the faithful reproduction of modelled work, the variety of materials which can be used to make the necessary moulds being of such a nature that any difficulty which may arise can be successfully met. As a general rule, moulds made of wax are found to have sufficiently elastic properties to allow the cast to be taken out with ease. And in the case of highly-relieved and undercut work, moulds made of gelatine entirely obviate the necessity of filling up the shadows, and allow the cast to retain, in a great degree, the artistic roughness and spirit of the original. The materials I have mentioned are those which are in common use in everyday work, but, besides these, plaster makes for some purposes the most perfect mould that can be devised; for instance, the casting of purely architectural forms, whose beauty consists in the straightness and sharpness which properly belong to them. The process of what is technically called

"PIECE MOULDING"

is used, which might be shortly described in making the mould in such sections as the nature of the work may demand. These pieces which fit most accurately together are confined in a case, "also made of plaster," which entirely prevents any such mischance as the various pieces getting out of position. Exactly the same process applies to the casting of figures or busts. Besides these, sulphur is used occasionally for particularly fine work such as casts of coins, &c., but, as it is rarely used in the production of ornament for architectural work, we need not dwell upon it here. Generally speaking, ornamental plaster work

has improved considerably within late years, and has made rapid progress towards a greater perfection from an artistic point of view. The study of old Scotch plaster work is an interesting one, which must be familiar to most of us here. There one meets with a variety of ingenious design, the results of much patient labour, and generally modelled in position by the hand. When we consider the beauty of that old work in existence in our own country, we wonder how so great

A CHANGE FOR THE WORSE

could have taken place, and passed into the vulgar and ugly character of work which prevailed not very many years ago, with its heavily relieved cornice, and huge centre flower weighing somewhere about 2cwt. or 3cwt., which seemed to possess the unfortunate knack of dropping and bringing half the ceiling with it, usually on the most unwonted occasions. Happily, we have to say that all this has undergone a change for the better; we have now a lighter and more artistic style of decoration. Much has been achieved in this direction by the aid of fibrous plaster friezes; parts of ceilings, and enrichments of all kinds, can now be cast of considerable dimensions, and at the same time possess such a remarkable degree of lightness that renders fibrous plaster one of the handiest materials to work with. And, to complete more thoroughly the work, these pieces are screwed to the ceilings or walls as their respective requirements demand. Thus you will at once perceive it is self-evident from the foregoing remarks that the securing of the work being well done effectively prevents the possibility of the

DISASTER OF A FALLEN CEILING.

While speaking of the advantages of fibrous plaster, I hope you will understand that I by no means cast any disparagement on the ordinary style of plaster-work: on the contrary, there are many designs which are more practically fitted to be carried out in the old way than the new. And in some cases a combination of both will be found to be the most suitable from a technical point of view. For instance, in a room, intended to be finished with a large frieze and small plain cornice, it would very probably be found that the operation which would give the best results would be to run the cornice in the ordinary way, and cast the frieze in fibrous plaster for securing it in position. But as so much depends on the character of the work to be done, as to the best method of doing it, that it would be impossible to lay down any hard and fast rule for the best way of executing decorative work in plaster. I have reviewed in a slight manner the crafts with which I am most familiar in connection with the decoration of architectural work, and advocated the use of models in carving. In cast work the use of modelling goes without saying, as it is the usual way of preparing the original, from which any number of impressions may be taken. To set the subject before you as clearly as possible I will now show some views on the screen, which will bring before your notice in a more graphic manner the connection of modelling with sculpture and the applied arts.

New lodgings have just been provided for the Judges of Assize at Winchester by the county of Hampshire. They are comfortable quarters in one of the old prebendal houses in the Close, just opposite to the ancient Priory Hall. The house in question has been used for some years for clerical meetings, and for the Cathedral choir school, and it was previously the residence of Sir Walter Crofton, and of Mrs. Lyall.

At a recent sale at Christie's a miniature of Hannah Beresford, a daughter of the Right Hon. John Beresford, when young, seated in a landscape, brought 94 guineas, and another of her sister, Frances Honoria, 130 guineas. "Mrs. Pelham Feeding Chickens," an engraving with untrimmed margins, after Sir J. Reynolds, by W. Dickinson, was knocked down for £446 5s., while "The Months," a set of twelve coloured prints, after W. Hamilton. R.A., by Bartolozzi, sold well for £80.

Professional Items.

ABERDEEN.—A new bridge is to be erected across the Ythan at Lewes of Fyvie. The old, narrow, hump-backed bridge which has formed an interesting landmark is to disappear. The old bridge had only 10ft. of width of roadway in the centre, which was considerably raised above the level of the road at each end, after the type of so many of the bridges built throughout Scotland during the last century. The plans of the new bridge have been prepared by Mr. John D. Watson, county engineer, and the contract has been secured by Mr. James Ferguson, Bogtama, Fyvie. The length of the bridge from roadway to roadway will be 63ft., with a clear width of 20ft., or double that of the old bridge. There will be two spans of 23ft. 3in. each, with a centre pier 4½ft. thick, as compared with 11ft. in the old pier. The bridge is to be built of rustic-faced freestone throughout, with concrete foundations.

ARBROATH.—It is proposed to erect a new fishermen's hall at Arbroath. The plans show a basement floor, a ground floor, and a gallery. The basement has been acquired by the ground inside the feu being at a lower level than the street, and in it are shown performers' rooms, a heating chamber, a store, and two reception rooms. On the ground floor plan are a porch, a vestibule with stairs leading to the basement and to the gallery and the hall.

BALMORAL.—In Crathie Church the unveiling of a Jubilee commemoration window took place a day or two ago. The new window is the work of Messrs. Clayton and Bell, Regent Street, London. The window is placed in the north transept, immediately opposite the Royal pew, which is situated in the south transept. It consists of three lancet lights, the centre one being the larger. The middle light, which comprises the main feature of the design, contains a representation of King David seated on a throne and bearing a golden harp. The right-hand light has a figure representing Miriam, the sister of Moses, bearing cymbals.

BIRMINGHAM.—The ceremony of laying memorial stones of a new Welsh chapel in Suffolk Street, Birmingham, was recently performed. The chapel, which was designed by Messrs. Ingall and Son, and is being built by Mr. John Bowen, will accommodate just over 200 persons; and behind the principal building there will be a meeting house and a residence.

BRIXTON, S.W.—The large establishment known as the Brixton Bon Marché has recently been considerably extended, and the contract for the electric light wiring of the whole building has been entrusted to Messrs. Geipel and Lange, to be carried out to the specification of Mr. Albion Snell with Andrews' Patent Concentric Wiring.

DEWSBURY.—There is a good deal of activity in the building trades at Dewsbury. Several villas are being erected on the Carrett or Nothfield estate, a new wing is being added to the Dewsbury and District Technical School, the frontage being to Carlton, and the London and Yorkshire Banking Company are getting out the foundations for new and handsome premises in Northgate, and similar work is being done in New Bridge Street for shops and offices. Tenders are invited for the construction of an arcade from that thoroughfare to the north side of the Market Place, and a fine terrace has been built nearly opposite the south gate of the Dewsbury Public Park. In addition, the Masonic Temple in Halifax Road is to be enlarged, and there is reason to believe that sanction will be given to the erection of a hospital at Mitchell Lathes for the reception of infectious cases. The new building inspector at Dewsbury is Mr. J. E. Fothergill, of Batley.

EASINGWOLD, YORKS.—The whole of the work in connection with the restoration of the Catholic Church of St. John the Evangelist,

Easingwold, including new roof, new stone buttresses, new porch to west entrance, &c., has been entrusted to Mr. Anthony Lyons, builder, of Norton, Malton.

ECCLES.—The Local Government Board has given its consent to the Eccles Corporation borrowing the sum of £1640 for the improvement and extension of the public baths in Milton Street, Patricroft. These works, which are nearing completion, consist of the erection of a new boiler-house and boiler, laundry, and the improvement of the existing baths.

FORFAR.—It is proposed to erect a new organ in Forfar Parish Church. The organ has been designed by Messrs. Forster and Andrews, of Hull, and is to be made throughout of the best materials. The bellows action is to be on a new principle, and wind is supplied by two hydraulic engines, with suitable blowing apparatus and starting and stopping gear. The sound board, upper boards, tables, and squares are made of Honduras mahogany, and the sliders of oak. The case-work of the instrument is of pitch or yellow pine, the front pipes to be decorated in gold and colours. The instrument is to occupy a position on the north side of the church, facing the pulpit, and large structural alterations on the building have to be made to make way for it. Almost the whole of the north wall of the church will require to be removed and a new wall erected. The gallery will also be taken down, and two new galleries built on the east and west sides of the church respectively, in order to leave an open space in front of the organ.

LEAMINGTON.—The Mayor of Leamington has laid the corner-stone of the new nave and bell tower of the Leamington Parish Church. When the work, for which Sir Arthur Blomfield is the architect, is completed, the nave will be about twice its present length, and the seating accommodation will be considerably increased. The new tower, in which it is intended to place the peal of six bells, which have been without a home since the wooden belfry was removed in 1833, will stand at the south-west angle of the church. It will be an imposing structure, with a total height of 143ft. to the top of the pinnacles. It is proposed to build a light lantern, of the Peterborough pattern, over the crossing of the nave and transepts, where sixty years ago it was intended to place a tower and spire. It is estimated that the whole work of restoring and completing the church will cost £15,000. The church, when completed, will undoubtedly be of very fine architectural proportions.

LEEDS.—At a recent meeting of the Highways Committee of the Leeds Corporation, tenders to the extent of £13,923 18s. 10d. were accepted in connection with the extension of the electric tramway system to Headingley, Chapeltown, and Hunslet. The Corporation had invited tenders for the supply of two engines and dynamos of about 1000-horse power, and for fifty new electric cars, which, it is anticipated, will be in use on the routes mentioned early next year. The committee accepted the tender of Messrs. Greenwood and Batley, of Leeds, for the engines and dynamos at the sum of £15,586; that of Messrs. Dick, Kerr, and Co., of Glasgow, for the fifty cars at £468 10s. each; and that of Mr. Isaac Gould, of Leeds, for the work in connection with the extension of the generating station at Crown Point at £4082 15s., that sum including everything except smith's and founder's work, which has been let to Messrs. Clayton, Son, and Co. Limited, Hunslet, at £830 3s. 10d.

LIVERPOOL.—A scheme for rebuilding the whole of the Royal Institute is to be carried out. Competitive plans have been invited for buildings to take the place of the present ones on the west side of Colquitt Street, and to be erected in sections as funds are obtained. The first portion to be proceeded with is that of erecting a lecture hall capable of seating 1250 people, at a cost not exceeding £7000.

The new offices built for the Liverpool School Board in Sir Thomas Street have recently been

opened. The building, architecturally one of the handsomest in the city, has been designed by Mr. Charles E. Deacon, architect, Liverpool. The style is a free treatment of English Renaissance. The building consists of a basement, ground floor, first, second, and third floors. The main staircase is situated in the centre of the building, and is lighted from an inner court by means of windows, which have been filled by ornamental stained glass. Space is enclosed for two hydraulic lifts. The principal rooms are on the second floor, where through an ante-room access is obtained on the right hand side to an apartment intended for the meetings of committees, and on the left to the board room. The committee room and board room are unusually lofty, the ceilings being raised by a mezzanine above the third floor. All these apartments have been richly panelled with teak. The walls above the panelling are decorated with embossed leather, and the ceilings and cornices are of rich design carried out in fibrous plaster. On the same floor, but to the right of the staircase, a short corridor leads to a large and handsomely fitted up apartment for the use of the chairman, clerk to the board, &c., with ante-room adjoining. This apartment is lighted by three bow windows looking on to the inner court. On the opposite side of the court, which is faced with white glazed brick, are cloakrooms and lavatories. The first floor is occupied by spacious and well-lighted general offices, and by the offices of the School Management Committee. On the ground floor are the offices of the school attendance department, with ample waiting-room accommodation. The basement will be occupied in part by a dining room for the employees and staff, the kitchen arrangements, &c., being of the most modern pattern. The building will be lighted throughout by electricity. The ventilating, lavatory, and other arrangements are of the most approved type. The cost of the building was £20,455, and the total outlay, inclusive of furniture, will be about £25,000.

MORECAMBE.—The introduction of electric light on the front at Morecambe has proved very satisfactory. At present there are fifty-five arc lamps in operation, extending from East View to the West End Pier. The cost of the undertaking is estimated at £40,000. Another step has been taken in the development of the town in the opening of the new Warwick Revolving Tower, erected at the West End. In design, the tower is hexagonal, being built with steel girders, braced with steel angle bars and cross tie rods, and having a height of 155ft. The passenger car, which travels 120ft. high, revolves as it ascends and descends. The car will accommodate 200 persons, and the structure is firmly secured to a very massive concrete foundation, weighing upwards of 300 tons.

NEWPORT.—The new Church of St. John the Baptist at Newport is in the Risca Road, and will accommodate about 700 persons. The present contract, which has been taken by Mr. W. A. Linton, of Chepstow Road, Newport, is for the erection of the nave, north and south aisles, south porch, chancel, south chancel aisle, north chancel aisle as an organ-chamber, a sacristy on the same floor as the church, and a large vestry, a store and heating chamber in the basement, with stairs leading up to the north chancel aisle. This will complete the church, with the exception of the west tower, which is contemplated, but the designs for this have not been elaborated yet. The style of work is of the Devon and Western Counties type of late Gothic. The material is red Risca walling with Bath stone drapings. The floors for the most part are to be of wood block, but the chancel floor will be in Mosaic. The roof will be covered with grey slate. The design is intended to be greatly enriched as regards the interior from time to time as funds will allow. It is hoped that the screen, the altar pieces, the pulpit and chancel fittings will eventually be of elaborate woodwork, and that many of the windows may be filled with painted glass of the best description, a scheme having been proposed for the treatment of every window in the church, so that there may

be a proper fitness in the whole conception and treatment. The designs are by Mr. F. R. Kempson, of Cardiff and Hereford.

OTLEY.—The new premises of the Yorkshire Banking Company Limited, in Kirkgate, Otley, which were recently opened for business, are admitted to be one of the handsomest piles of banking premises in the Riding. The new premises have been built from plans prepared by Mr. Marshall, architect, Otley. They occupy a commanding position near the corner of Kirkgate and Westgate, with a frontage of 30ft. The style is perhaps more akin to the Renaissance than any other. The outer walls are of stone obtained from the Clayton Quarries, near Bradford, the hardest stone to be found in the county; the inner walls are all of brick. The vestibule or lobby is paved with mosaic, and from this an entry is obtained to the business part of the bank, a commodious room 23ft. by 26ft., and 14ft. high, furnished with Spanish mahogany counter and desks and various other office requisites. A dado of Spanish mahogany runs all round the apartment, and on the wall facing the door there is a handsome mahogany mantel and overmantel. The contractors are: masonry, Mr. W. Maston, Otley; joinery, Messrs. Ives and Co., Shipley; plumbing, Messrs. Suttle and Co., Otley; plasterers, Messrs. Chaffer, Otley; slaters, Messrs. Watson and Worsnop, Leeds; painting, Messrs. Graham, Otley; wood-block flooring, Messrs. Nightingale and Co., Grimsby; strong room door, Messrs. Milner, Leeds; fibrous plaster, Mr. Home, Idle; ironfounders, Messrs. W. E. Turner and Co., Otley and Harrogate; art metal work, Mr. J. W. Longfield, Otley; carving, Mr. Huddleston, Otley; furniture fittings, Mr. Hodgson, Northallerton; mosaic, Leeds Art Pottery Company.

PENARTH.—The spacious schools erected by the Penarth School Board were opened last week. The school has been built to provide accommodation for 780, and is on two floors. The ground will be occupied by infants, and the upper floor by boys and girls. There are six class rooms, and in addition a large cookery room with scullery, and also a room for the use of the Board. The upper floor is somewhat different. Here an assembly hall is arranged, occupying a central position, and measuring 53ft. by 28ft. The school is heated by hot water on the low-pressure system. This portion of the work has been carried out by Messrs. John Williams and Sons, Cardiff. Two large playsheds are arranged in the playgrounds. The architect of the building is Mr. J. H. Phillips, St. John's Chambers, Cardiff. The builder is Mr. John Jones, of Penarth. The amount of contract was £7375.

PRESCOT.—The new infirmary buildings which have been erected by the Prescott Board of Guardians on land adjoining the workhouse at Whiston have just been opened. The new buildings have been erected from plans prepared by Mr. James Gandy, architect, St. Helens, at a cost of about £20,000. The contract for the work was secured by Mr. Fred Brown, of St. Helens. Accommodation is provided for about 300 beds, arranged in thirties, on each of the ten floors. The buildings are of simple brick, and comprise two large blocks of three stories, and two blocks of two stories each; and are fitted internally with all the most modern appliances, including fireproof floors throughout, fire-escape landings, &c.

ROTHERHAM.—A new children's ward at the hospital has been declared open. Mr. J. D. Webster, of Sheffield, is the architect, and Messrs. Chadwick and Co., of Rotherham, are the contractors. The "Queen's Ward" is a handsome addition to the hospital. The bath rooms and sanitary blocks are fitted up with the most modern sanitary appliances, which have been supplied by Messrs. Dent and Hellyer. In addition to the large ward there is a small isolation ward for two beds, fitted with bath rooms. The cubic space allowed to each bed is about 1200ft. The walls of the wards are lined with Burmantoft faience up to the height of 5ft., and above that the walls are painted Parian cement. The large ward is

heated by a central stove in addition to hot-water pipes. In the small ward there is a fireplace and also pipes. The building has been erected and arranged in consonance with the most modern and advanced ideas of hospital construction. The floors are all laid with trazzo, a species of Italian mosaic.

ST. HELENS (Lancs.).—Sir David Gamble has laid the foundation stone of a new mission school-church that is being erected in Knowsley Road. The chief feature of the building will be a large room, 60ft. square, with chancel for services, and for school purposes this room will be divided by folding partitions. The building will be constructed of the best pressed bricks, with red stone dressings, in the Gothic style of Architecture, at an estimated cost of £3189. The contractor is Mr. Fred Brown, and the architect Mr. G. S. Packer, of Southport.

SOUTHPORT.—The Victoria Wesleyan Chapel, Blowick, Southport, was opened a few days ago. The cost of the building has been £4700. The seats in the new chapel are in amphitheatre form, and the building presents other locally novel features. The architects were Messrs. Green and Brocklebank, of Liverpool.

TRON.—Two compartments of a three-light window under the south gallery of the Tron Church have just been filled with stained glass. In the central light is represented a figure of Moses, bearing the two tables of stone and the rod. The light to the left side represents the figure of David, with one hand resting on the harp, and the other holding a scroll. The figures are placed underneath ornaments of an architectural character. The windows were designed and executed by Messrs. Ballantine and Gardiner, Edinburgh.

YORK.—An entire wing has been added to the Royal Station Hotel, York. This when completed will include a new reading room and writing room on the ground floor, a private dining room and reception room on the first floor, and about twenty-four additional bedrooms. The reading room is a magnificent department. The room is approached through a vestibule at the end of the corridor in the present building. This vestibule will form a pleasant and convenient lounge, being furnished with comfortable divans and chairs, and is lighted by two handsome stained glass windows. The reading room is entered by a pair of folding doors under a handsome entablature flanked by fluted Corinthian columns, and the interior presents a rich and harmonious effect, the whole of the woodwork, including the ceiling and floor, being constructed of solid oak. The ceiling is divided into panels by heavy beams, richly moulded, and again sub-divided into smaller panels by moulded ribs having an oak cornice and frieze enriched by triglyphs. The walls are panelled to a height of over 9ft., and the panelling is surmounted by a carved frieze in Acanthus scroll work. There are two lofty fireplaces at either end of the apartment with richly carved entablatures, and panels bearing the arms and initials of the North-Eastern Railway Company. These are supported on carved Corinthian columns similar to those flanking the entrance. The fireplaces are lined with red bricks, which set off the canopied dog stoves, and give an air of comfort and warmth to the room. The upper portion of the walls is hung with a very bold design in Cordelova, executed in high relief, and painted and gilded in soft green and brown tints. The style of architecture adopted is that prevailing in England in the beginning of the eighteenth century, somewhat severe and classical, and harmonizes well with the exterior of the building, while at the same time it offers free scope for playful treatment in the enrichments. The execution of the work has been entrusted to Messrs. Robson and Sons, of Newcastle-upon-Tyne. The electric fittings have been supplied by Messrs. Veritys, Limited, of Regent Street, London, and the stained glass has been executed by Mr. G. G. Baguley, of Newcastle-upon-Tyne.

Views and Reviews.

THE KROMSKÖP.

The pamphlet which booms this invention is issued by the Photo-Chromoscope Syndicate Limited. The writer of this brief notice was asked some time ago to examine a number of photographs produced by the passage of light through this instrument, and to judge for himself whether the colours were Nature's own. As to this the answer must be that they appear to be as true as could be expected, considering that light conveyed to the plate through a complex of lenses is not the light of day, and that the absolute stillness of apparently paralysed nature-forms is hardly conducive to pleasure. What one learns is another matter. It is as different from it in fact as the arc-light on any other illuminant obtained artificially. Take for instance, a bowl of flowers. Look first at that; then into the box where the photograph is, and it will be perceived that they look like death-stricken things. The illusion may be complete at the moment, but disillusion follows as quickly as it does in a wax-work show. It may fairly be said of the Krömsköp that it does for the coloured object what the phonograph does for the voice—it preserves and reproduces it "with a difference," as Ophelia said. The "vast" which severs the quick and the dead is great and impassable, but, granted the difference, the instrument, as a mere recorder of facts, may be declared to be an important invention. This constitutes its claim to respect, and explains its worth in the eyes of the company promoter. It should be explained that we cannot get prints from the negatives, as in the case of uncoloured photographs. If you have not the thing yourself, you must make the said negatives part of your luggage, and take them home to some institution where the photographer's plant is established. The company in question may be advised to take a hint from the spectacle makers, and have the Krömsköp on show in the railway stations alongside of the sight-testing things. The inventor is probably not far wrong in supposing that he has facilitated the acquisition and retention of useful information in more ways than can be enumerated within the limits of a printed discourse.

"WORKSHOP MAKESHIFTS."

This is a useful little handbook for the amateur mechanic of limited means, and as a present for an intelligent and ingenious youth should prove a source of unfailing pleasure and information. The author, dealing with his subject from the standpoint of an experienced and sympathetic friend, "who has been thro' it all you know," and pre-supposing on the part of his pupils some knowledge of the manipulation of what he, in common with not a few people who should know better, term carpenter's tools, but which are in reality joiner's, describes in detail and with copious illustrations the manufacture of a lathe with overhead motion, screw-cutting circular, and fret-saw attachments, from the odds and ends to be picked up in any well-regulated household, such as disused stair-rod, cotton-reels, gas-pipe, &c. Very full instructions are given for the making of sundry tools and contrivances, some of which would probably bring a smile of derision to the face of the professional mechanic, but which will be undoubtedly welcome to the amateur, who not unfrequently is pulled up short in the realisation of his conceptions by the want of some expensive tool. A good table of tempering colours for steel tools is given with instructions for hardening and tempering, and also one of alloys and their melting points. The author mentions also where second-hand tools may be picked up cheaply, but confines himself to one neighbourhood. He might well have added that the same dealers could be met with on other days in Lisson Grove, W., Battersea Park Road, S.W., Farringdon Road, E.C., Mile End Road, E. Occasionally, we think, he rides this hobby too hard—to wit, to buy a rusty old chisel for a penny, and spend

three or four hours in converting it into a presentable makeshift for a new one, which may be purchased for fourpence-halfpenny; this is scarcely an economical proceeding, even for an amateur. The chapter on General Tips, however, is well worth the price of the book. The author, who has a holy horror of that bane of an amateur's existence, the female relative, who, prone to make surreptitious and predatory incursions upon his domain, confiscating his laboriously-produced fillets and frets for meat skewers or firewood! or trying original experiments of her own upon his well-sharpened axe or plane, trying alike to the temper of the tool and its owner, herein gives divers ways to circumvent the enemy that will be highly appreciated by his readers. The mechanical saw-setter, illustrated in the chapter on saw sharpening, is well worthy the attention of the professional craftsman as a cheap and easily-made time-saving tool. We conclude our remarks upon this interesting handbook by pointing out one little piece of bad advice the author gives, and which he will doubtless correct in the next edition—viz., "To place the bench planes upon their sides when not in use." No tradesman would dream of doing this, as the position is both dangerous to the user or passer-by, and injurious to the tool, causing the working face to cast or twist. A clean, smooth place at the front end of the bench-top should always be reserved for the planes, and they should be placed there, upon their soles, when not in use.

"Workshop Makeshifts." By Hans J. S. Cassal. Price 2s. 6d. L. Upcott Gill, 170, Strand.

WILLIS'S WORKMEN'S COMPENSATION ACT, 1897.

The third edition of this little book appears most opportunely just at the moment when the Act which it annotates and elucidates comes into force, and the fact of its having already reached its third edition is ample evidence that it was needed. The Act itself is a short one, but it has to be read as being supplementary to other existing Acts, and in some cases alternative to them, so that cross references are necessary, as well as a most careful weighing of the verbiage in all the Acts concerned before the position brought about by the new regulations can be fully understood. To this end Mr. Willis's exhaustive series of notes will materially assist, for they have evidently been compiled with great care, and are arranged with considerable literary skill, clearly, and intelligently. If we venture to criticise at all, it is to suggest that the actual text of the Act would have been better printed in some more distinctive type, such as small De Vinne or large italics, and to complain of a little, perhaps unavoidable, repetition. Builders who are affected by the Act when their workmen are employed on buildings over 30ft. in height, "and is either being constructed or repaired by means of a scaffolding, or being demolished, or on which machinery driven by steam, water, or other mechanical power is being used for the purpose of the construction, repair, or demolition thereof"—and this includes all builders—should certainly obtain the book, and both study it carefully and keep it for reference in case of need.

THE LONDON MANUAL.

This year's issue of this publication contains sketches by Alfred Parsons, Joseph Pennell, and Herbert Railton, but they are by no means finished works of art, and are too few and far between to warrant the publishers making such a feature of them. The printing of the half-tone photo-engraved blocks might have been considerably improved, but, apart from pictorial pretensions, the information is clearly stated, and makes a useful reference book of 342 pages for anyone requiring information on the various public authorities governing the metropolis, with interesting descriptions of their buildings, works, and methods. The London Manual covers the period of the municipal year from March, 1898, to March, 1899.

"The London Manual for 1898-99," edited by Robert Donald. London: Edward Lloyd, Limited. Price 1s. and 1s. 6d.

Under Discussion.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.

The annual excursion took place on Saturday week at Glendalough. A large number of the members joined, amongst those present being the president, Mr. I. Howard Pentland, R.H.A., Messrs. Walter G. Dooly, Thos. F. Slevin, R. Caulfield Orpen, G. Sheridan, A.R.I.B., Anthony Scott, M.S.A., and R. U. Butler, hon. secretary. The ruins of the famous churches of the ancient and renowned University of Glendalough were visited. In the evening the members dined together at the Koyal Hotel, Glendalough, the president presiding.

THE SHROPSHIRE ARCHÆOLOGICAL SOCIETY.

The Shropshire Archæological Society recently had an excursion to South Shropshire. A visit was first made to Chelmarsh Church, and the Norman and Early English remains to be found there were inspected. The greater part of the church dates from 1345, when Hugh de Mortimer founded a chantry chapel, dedicated to St. James. The east window is a fine one, and the south wall is one of the most finished pieces of Architecture in the country. The church also has a good Elizabethan chalice of honeysuckle pattern. A visit was next paid to Billingsley, the birthplace of Dr. Thomas Hyde, the Oriental scholar, and the church, which is chiefly remarkable for a mediæval wooden porch and a good Easter sepulchre recess, with aisles and chancel and transepts of the Early Decorated period, was also visited. The south transept is of almost unique interest, for the arrangements of a mediæval chantry chapel can still be seen almost complete, while there are also two aumbries, an altar ledge, piscina, tomb and effigy of the foundress, and the original reredos partly fills up the central light of the east window. In the chancel were noticed two mediæval tombs, and in the north transept is one of the finest Elizabethan tombs in England.

MIDLAND CHURCHES.

The first whole-day excursion in connection with the Birmingham Archæological Society took place a few days ago. The ground chosen was entirely unfamiliar. The party proceeded by train to Moreton-in-Marsh, and carriages then took them by the old horseway to Stow-on-the-Wold. Here the ancient church presented many objects of interest. One Perpendicular window is remarkably fine. The chancel has attractive features, though blemished by a gaudiness of colouring which combines with the truly modern stained glass to hurt the eye. The silent and solitary market-place, with its restored cross, is very quaint, and one singular house in it, adorned with Corinthian pillars, was the object of universal attention. The secluded hamlet of Icomb, or P-the-Combe was afterwards visited. The church seems to have been largely rebuilt in Elizabethan times, but there are many traces of more ancient Architecture. The tower is singularly simple and quaint. In what was once the chapel of the Virgin is an effigy supposed to be that of Sir John Blacket, formerly resident of Icomb Place. Icomb Place was next visited. The house is in a very secluded position, and is an interesting specimen of a mediæval manor house. Unfortunately, it has been suffered to fall into occupation as a farmhouse. The greater part had been uninhabited and in ruins, and cattle had been stabled in the drawing-room. Drastic restorations had therefore been necessary to fit it for habitation, and much of the ancient glory has departed. Many features of singular interest still, however, remain, and the question whether the present billiard-room had, or had not, been a chapel was warmly discussed. At Bledington the last halt was called, and here a church was found almost untouched by the spoiler's hand, and so full of attraction that the visitors found it hard to quit. It is apparently of early thirteenth century work. The niches, once

doubtless, occupied by statues of saints, stand, almost uninjured, by the side of the windows. The old carved-oak seats remain, actually worn with age, but practically intact. The very proclamation ordering a collection on behalf of the sufferers from the Great Fire is preserved, and the covers at least of the chained Bible are still chained to the reading-desk.

Enquiry Department.

THE COCK IN SYMBOLISM.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you say why weather-vanes on church spires almost invariably assume a representation of the cock? In the few instances where a variation occurs I have generally been able to assign some historic or local reason.—I am, sir, yours faithfully,

"COCKSURE."

The cock as a symbol is of more than local importance; it is one of the world's symbols, and dates from remotest times. We find it on Egyptian monuments; it was used from early ages as a symbol of fertility, of creativeness. Among the Greeks it was sacred to the Healer, Æsculapius, the Great Physician. We find it on early Christian tombs as a symbol of life. On these tombs two cocks are often shown fighting, one being vanquished, the whole probably intended to represent the battle of life. The cock in mediæval as well as in patristic literature was used as the symbol of liberality and vigilance: of liberality, because, while calling other fowls to eat, he eats little himself; of vigilance, because he wakes at all hours. The cock was again brought into even more intimate relation with religion by our Lord's reproof to Peter, and he now stands a lasting exhortation to watchfulness on almost every spire and tower in Christendom. There are other aspects of this particular symbol, which would, however, require more space than can be afforded.

PERSPECTIVE SKETCHES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Could you kindly give me information regarding the methods employed by our perspective artists in the production of their drawings? Also, what course of study would you advise a student to follow in order to attain proficiency in the same?—Yours faithfully,

"PUPIL."

Most of our perspective artists spend great pains in pencilling in their work before they commence to ink in. In inking in, some men put in all the darkest shadows first, and then work up the several tones of the drawings; others finish as they go along. The course of study we should advise would be a long course of model, cast, and life drawing, supplemented by as much drawing from Nature as possible. To attain the art of perspective read Ferguson on perspective, and work out all the examples he gives.

An attractive collection of nearly eighty landscapes are now on view at the Modern Gallery in Bond Street, which is rendered doubly attractive by its freshness and originality. Mr. Simpson has a style of his own, and has been particularly happy in his selection of subjects out of the beaten track. He has thoroughly explored Essex, which for pictorial purposes is but little known, and has up to now been but sparsely utilised; he shows us what picturesque material is to be found in this hitherto neglected corner of England. Evidence of this may be found in his spacious and breezy picture "Cattle on the Saltings," the vivid colour and fine atmospheric effect in "Hay Barges Loading, Maldon," the gleam and shimmer in "Winter Sunshine, Kelvedon," the skilful treatment of quaint old buildings in "An Essex Village Street," the truthful and refined rendering of "The Maldon Salt-works," and the delicate feeling for air and sunshine displayed in "Marshland, Early Summer."

KEYSTONES.

In connection with Cemetery Road Baptist Chapel, Sheffield, new schools are to be erected. The cost will be £3000.

CONTRACTS amounting to £7818 have been accepted for the erection of a new Wesleyan College on the Weaponness Estate, Scarborough.

THE Duke of Portland has laid the corner stone of a new wing of the Nottingham General Hospital, which is part of a scheme of extension, costing £50,000.

A NEW church to accommodate 450 people is to be erected at Hindsford, Atherton, at a cost of £7000. The site, which contains 2400 square yards, is the gift of Lord Lilford.

THE new laboratories of the London School of Medicine for Women, 30, Handel Street, Brunswick Square, were opened by the Prince and Princess of Wales on Monday last.

A MISSION church has been erected at a cost of over £1100 at New Houghton, Pleasley, Nottingham. The architect was Mr. P. H. Curry, Derby, and the builder Mr. J. Warner, Pleasley.

THE Salford Board of Guardians has resolved to purchase about twenty acres of land at Weaste, near the Union Infirmary, as a site for the new workhouse, at a sum not exceeding £14,000.

It is now definitely decided that the Queen will not come to town this season from Windsor Castle for the purpose of laying the foundation stone of the proposed new buildings for the South Kensington Museum. The ceremony, under existing conditions, must necessarily be deferred for some time, and will probably not take place till next year.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN.—For the enlargement of school buildings, being new gymnasium, manual instruction, and cookery rooms, at King-street School, and additions and alterations on the main building, for the School Board. Mr. J. A. Ogg Allen, architect, Board Offices, Aberdeen:—

Masonry.—A. Milne and Sons, Aberdeen
Carpentry.—Watt and Clark, Aberdeen
Slating.—A. Adam and Co., Aberdeen
Plastering.—George Leith, Aberdeen
Painting and Glazing.—John Williamson, Aberdeen

BLACKBURN.—For the erection of sub-structure of additional wing to the infirmary, for the Board of Management of the Blackburn and East Lancashire Infirmary. Messrs. Simpson and Duckworth, architects, Richmond-chambers, Blackburn. Quantities by architects:—
Jno. Cronshaw ... £2,189 J. Whitaker and Son £1,749
Jno. Boland ... 2,180 W. J. Woolf Cronshaw,
Jno. Ferit and Sons ... 1,999 Pump-street, Black-
E. Lewis and Son ... 1,988 burn* ... 1,747
* Accepted.

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CHESTERFIELD.—For pulling down bridge and erecting new one over river Hipper for the Corporation. Mr. H. E. Featherstone, Borough Surveyor, Saltergate, Chesterfield:—

Robert Peck ... £1,295 0 0 R. Holmes & Co. £1,097 11 0
J. Wright, Chesterfield ... 1,105 6 6 * Accepted.

HIGH WYCOMBE.—For the construction of precipitation tank, for the Town Council. Mr. T. J. Rushbrooke, Borough Surveyor, High Wycombe:—

Meridith ... £5,369 0 0 G. Bell ... £4,139 0 0
Clift Ford ... 5,134 0 10 Lee and Son ... 3,699 0 0
Bently and Lock 4,602 11 6 Wycombe* ... 3,699 0 0
G. H. Gibson ... 4,217 0 0 * Accepted.

KETERING.—For the completion of eighteen private streets, &c. (2,600 yards), for the Urban District Council. Mr. T. R. Smith, Surveyor, Market-hill, Kettering:—

Curral, Lewis and ... H. H. Barry ... £8,895 0 0
Martin ... £9,361 15 5 W. G. Wilmott ... 8,594 0 0
Siddons & Freeman 9,313 0 0 F. Barlow, Roth-
Bently and Lock 9,169 5 8 well* ... 8,170 0 0

LEEDS.—For the completion of the new meat market and abattoir, in New York-street and Harper-street, Leeds, for the Corporation:—

Masonry and Bricklaying.—T. J. Wright £9,532 17 8
Joinery.—W. Mason and Son ... 2,112 0 0
Plumbing.—H. Braithwaite and Co. ... 1,099 0 0
Slating.—J. Adkinson and Son ... 430 0 0
Concreting.—S. McFarlane ... 519 12 0
Ironfoundry.—W. Horsfall and Co. ... 2,096 18 9

LEEDS.—For the erection of laundry buildings, &c., Aire-place, Kirkstall-road, for the Laundry Co. Limited. Messrs. Johnstone Bros., architects, 39, Lowther-street, Carlisle. Quantities by architects:—
Charles Meyers ... £3,347 10 E. Taylor and Co.,
Littleborough* ... £3,035 10
* Accepted.

LONDON.—For erecting office and warehouse, Orchard-street, Westminster, S.W., for Messrs. P. S. King and Son. Mr. G. Harold Elphick, architect, Broad-street House, New Broad-street, E.C.:—

J. Greenwood ... £7,174 Grover and Son ... £6,982
W. Downs ... 7,124 Lorden and Sons ... 6,832
Holloway Bros. ... 7,110 Kirk and Kirk ... 6,795
Adamson and Sons ... 7,055 Stanley Bird ... 6,761
Whitehead and Co. ... 6,985 W. King and Son* ... 6,669
* Accepted.

LONDON.—For rebuilding premises, 41, Pitfield-street. Mr. A. P. Stokes, architect and surveyor, 1, Addington-road, Bow:—

J. Weibking and Son ... £1,948 M. F. C. Hoskins ... £1,665
Perry Bros. ... 1,777 Yates and Co.* ... 1,587
S. J. Scott ... 1,687 * Accepted.

NEW BROMPTON (Kent).—For the erection of drapery and art furnishing stores, for Mr. C. Fynn. Mr. E. J. Hammond, architect, 111, High-street, New Brompton. Quantities by the architect:—

H. Wyles ... £2,985 T. Cornelius ... £2,859
J. Wellford ... 935 H. E. Philips, New
J. H. Harris ... 875 Brompton (accepted) ... 830

NORWICH.—For the restoration of nave and a new south aisle to Cringleford Church. Mr. Arthur J. Lacy, architect, and Diocesan Surveyor, 6, Upper King-street, Norwich. Quantities supplied:—

R. Chapman ... £1,040 F. Gunton ... £2,919
J. Downing and Son ... 972 J. H. Smith ... 812
S. R. Wilkins ... 987 G. E. Hawes, Norwich* ... 84
* Accepted.

OXFORD.—For the erection of a gymnasium at "Summerfields," for the Rev. O. E. Williams, D.D. Mr. Herbert Quinton, architect and surveyor, 15, Magdalen-street, Oxford. Quantities by the architect:—

Wilkins Bros. ... £1,338 Hutchins ... £1,075 0 0
Benfield and Loxley ... 1,236 Organ Bros.* ... 1,069 12 4
* Accepted.

PETERBOROUGH.—For the erection of two houses, Parliament-street. Mr. J. G. Stallebrass, architect, North-street, Peterborough:—

Hicks Bros. ... £2470 5 8 Sibley Bros. ... £2435 0 0
Watson and Lucas 440 0 0 Nichols (accepted) 384 10 0
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PLYMOUTH.—For making certain structural alterations and additions to the Old Yacht Club premises, Millbay-road, as new offices for the Western Counties Agricultural Association, Limited. Mr. Robt. H. B. Neal, architect, Central Exchange, Plymouth:—

J. P. Berry ... £2,100 0 J. Partridge ... £1,785 0
F. C. Ambrose ... 1,994 18 T. Jenkin and Son ... 1,769 0
J. Goad and Co. ... 1,920 0 A. Andrews ... 1,760 0
Wakeham Bros. ... 1,860 0 A. N. Coles ... 1,754 0
W. Gibson, Exeter ... 1,820 0 J. H. Blachell, Ply-
A. R. Lethbridge mouth* ... 1,737
and Son ... 1,785 0 * Accepted.

PORTSMOUTH.—For the erection of a church to St. Stephen, Portsea, for St. Stephen's Church Building Committee. Mr. H. A. Crowley, architect, 22, High-street, Croydon. Quantities by Messrs. E. M. Whitaker and Mr. C. G. Maylard:—

W. Larnmouth ... £9,130 0 Jas. Crockerell ... £7,527 0
W. Potter ... 8,706 0 Light and Son ... 7,425
Clark and Sons ... 8,267 0 Thos. P. Hall, 7 & 9,
Stephens, Bastow, Bedford-rd., South-
and Co., Ltd. ... 7,998 0 sea, Portsmouth*, 6,866 10
J. M. Perkins ... 7,577 0 * Accepted.

PURNEY (Surrey).—For new roads and sewers on the estate of Mr. R. J. Pettitward. Messrs. Lee and Pain, architects and surveyors, 63, Lincoln's-Inn-Fields, W.C.:—

W. R. Williams ... £1,911 J. Mears* ... £1,851
F. Smith ... 1,883 * Accepted.

REIGATE.—Accepted for the erection of a house at Underhill Park, Reigate, for Mr. C. Taylor. Mr. C. E. Salmon, architect, Bell-street, Reigate:—

W. Bagaley and Sons ... £1,430
ST. LEONARDS-ON-SEA.—For house and shop, Norman-road, St. Leonards-on-Sea, for Mr. W. Beatty. Messrs. Elworthy and Son, architects, London-road, St. Leonards. Quantities by the architects:—

H. E. Crutenden ... £1,436 F. G. Hatton ... £1,230
P. Jenkins ... 1,400 Barter and Gasson ... 1,045
Eldridge & Crutenden 1,395 W. C. Morgan, St.
Padgham & Hutchinson 1,350 Leonards* ... 1,035
C. Harman ... 1,275 * Accepted.

STOCKPORT.—For infirmary extensions, Messrs. Woodhouse and Willoughby, architects, Manchester:—
Byron ... £11,388 T. and W. Meadows,
G. Macfarlane ... 11,290 Heaton Norris* ... £10,803
J. Bainton ... 11,195 * Accepted.

STONEHOUSE.—For new premises, for Mr. John Perry (including the removal and setting back of "Pemeroy's Corner"). Mr. H. J. Snell, architect:—

J. P. Berry ... £3,157 W. Palk ... £2,760
S. Harvey ... 2,837 - Pearn ... 2,735
T. May ... 2,835 G. B. Turpin ... 2,665
T. Crews ... 2,789 J. Jenkin and Son,
H. Blackell ... 2,773 Devonport* ... 2,550
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Building Stones and Quarries of Northumberland and Durham.*

BY GEORGE T. BROWN.

(Continued from page li.)

STRENGTH.—The strength of stone should be ascertained if it is to be subjected to any excessive or unusual stresses. Stones in ordinary building or engineering works are generally under compression, occasionally subject to cross strain, but never to direct tension. It is generally laid down that the compression to which a stone should be subjected in a structure should not exceed one-tenth of the crushing weight as found by experiment. Practically, however, the compression that comes upon a stone in any ordinary building is never sufficient to cause any danger of crushing. The greatest stress that comes upon any part of the masonry in St. Paul's Cathedral is hardly 14 tons per square foot. In St. Peter's, Rome, it is about 15½ tons per square foot. The weakest sandstones that exist will bear a compression of 120 tons per foot, while the resistance of ordinary building stones ranges from 140 to 150 tons per square foot, and in the case of granites and traps rises as high as 700 or 800 tons per square foot. It is possible, however, in some forms of arches, in retaining walls, and in other structures, that a considerable pressure may be concentrated upon certain points, which are liable to be crushed.

WEIGHT.—The weight of a stone for building has occasionally to be considered. In marine engineering works it is often advisable to use heavy stones to resist the force of the sea. A light stone would be best adapted for arches, while heavy stones would add to the stability of retaining walls.

APPEARANCE.—The appearance of stone is often a matter of importance, especially in the face work of conspicuous buildings. In order that the appearance may be preserved, a good weathering stone should, of course, be selected, free from flaws, clayholes, &c. All varieties containing much iron should be rejected, or they will be liable to disfigurement from unsightly rust stains, caused by oxidation of the iron under the influence of the atmosphere. Stones of blotched or mottled colour should be regarded with suspicion. There is probably a want of uniformity in their chemical composition, which may lead to unequal weathering.

POSITION IN QUARRY.—In order to obtain the best stone that a quarry can furnish, it is often important that it should be taken from a particular stratum. It frequently occurs that in the same quarry some beds are good, some inferior, and others almost utterly worthless for building purposes, though they may all be very similar in appearance. The want of this precaution led to the use of inferior stone (though from very carefully chosen and good quarries) in the Houses of Parliament. It may be interesting to relate the method in which this stone was selected. In 1838-9 a Royal Commission sat to inquire and investigate, consisting of Sir Chas. Barry, Dr. Wm. Smith, and Sir Henry de la Beche (geologists), and Mr. C. H. Smith, an eminent builder. One of the forms of inquiry—which inquiry, by the way, was commenced in this district, and these forms printed in Newcastle—required most minute particulars of all kinds.

It may be interesting to give this form here—it was as follows, and is from the President's address to the Members of the Tyneside Natural Field Club, as published in Vol. III., p. 14, of the Transactions:

"One of the forms for making the several requisite inquiries, which was printed in Newcastle, may serve as an example of data for collecting such information:

"**TOPOGRAPHY.**—Name of place? Name of county? Nearest post town? Name of quarry?

"**OWNERSHIP.**—Owner or lessee of royalty? Address of agent? Charge for royalty? Name of the parties now working the quarry?

* A paper read before the Northern Architectural Association.

"**NATURE OF STONE.**—Designation? Component part? Colour? Defects? Depth of beds of workable stone? Names, qualities, and thickness of the different lifts in their order downwards? Cubic feet per ton? Weight per 6ft. cube when quarried? Ditto when dry? Powers of absorption? Resistance to pressure? Effects of freezing? Sp. G.?

"**STATE OF QUARRY.**—When opened? How much saved? Thickness of cover? If in full work? Means of working? State of quarry head? Angle or rate of dip? Working with reference to dip? If production of wall stone, and of what thickness? Distance of joints?

"**SUPPLY.**—Present and probable power of supply? Price at quarry of scantlings squared to order per foot? Price of wall stone (if any) at per ton? Description, extent, and cost of carriage to London? Cost of plain work per foot at London wages? Cost delivered in port of London?

"**GENERAL REMARKS.**—If employed in Roman works, and where? Names and dates of buildings? Ancient and modern wherein employed, and present state of the stone?"

Professor Kerr, lecturing some ten years ago in connection with the Carpenters' Company, relates how this commission finally came upon a Norman church at Southwell, in Nottinghamshire, with its carvings as clean cut as if done the year before. The stone was carefully examined, and found to be Mansfield Woodhouse, which the commission determined should be used. By the time the basement had been built, the supply of stone gave out. They next found the Anston stone, in the same neighbourhood, a stone partly made crystalline by a wave of heat passing through a certain portion of the quarry, the crystalline and non-crystalline stone being quite indistinguishable. Mr. C. H. Smith, who was appointed to examine the stone as it arrived, declined to do so, owing to some difficulty in the matter of his remuneration, with the consequence that the stones not being checked, the non-crystalline found their way into the buildings, and have had ultimately either to be renewed or coated with some preservative.

SEASONING.—Nearly all stone is the better for being seasoned by exposure to the air before it is set. This seasoning gets rid of the moisture, sometimes called "quarry sap," which is to be found in all stone when freshly quarried. Stone should, if possible, be worked at once after being quarried, for it is then easier to cut, but unless this moisture is allowed to dry out before the stone is set it is acted upon by frost, and thus the stone, especially if it be one of the softer varieties, is cracked or sometimes disintegrated. The drying process should take place gradually. If heat is applied too quickly, a crust is formed on the surface, while the interior remains damp and subject to the attacks of frost. Some stones, which are comparatively soft when quarried, acquire a hard surface upon exposure to the air.

NATURAL BED.—All stones in walls, but especially those that are of a laminated structure, should be placed "on their natural bed"—that is, either in the same position in which they were originally deposited in the quarry, or turned upside down, so that the layers are parallel to their original position, but inverted. If they are placed with the layers parallel to the face of the wall, the effect of the wet and frost will be to scale off the face layer by layer, and the stone will be rapidly destroyed.

In arches, such stones should be placed with the natural bed as nearly as possible at right angles to the thrust upon the stone, that is, with the "grain" or laminae parallel to the centre lines of the arch stones, and perpendicular to the face of the arch. In cornices with undercut mouldings the natural bed is placed vertically and at right angles to the face, for if placed horizontally, layers of the overhanging portion would be liable to drop off. There are, in elaborate work, other exceptions to the general rule.

It must be remembered that the beds are sometimes tilted by upheaval subsequent to their deposition, and that it is the original position in which the stone was deposited that must be ascertained. In others it can only

be traced by thin streaks of vegetable matter, or by traces of laminae, which generally show out more distinctly if the stone is wetted. In other cases, again, the stone shows no signs of stratification, and the natural bed cannot be detected by the eye. A good mason can, however, generally tell the natural bed of the stone by the "feel" of the grain in working the surface. A stone placed upon its proper natural bed is able to bear a much greater compression than if the laminae are at right angles to the bed joints.

None of the stones in the list on the next page are red sandstones. That most used in this neighbourhood is Corncockle. The following remarks are taken from Gwilt:—Corncockle Quarry, one of the oldest of the new red sandstone quarries in the south-west of Scotland, is situated about three miles from Nethercleugh station, on the Caledonian Railway. It is obtained in any size blocks up to ten tons. The colour is a light red, and very uniform; slight black streaks occur here and there, which are a form of mica, but they disappear entirely after twelve to fourteen months exposure. The beds are from 1ft. to 3ft. thick, with an occasional one up to 4ft. 6in. The stone is considered locally to be the most durable of all the Dumfries red sandstones, and to keep its colour best. It contains a very high percentage of silica, and stands frost well, as also the sea air, and is a free working although a strong stone. Its crushing strain is 2·38 tons per square inch, applied on a block of 1½ in. cube.

GWILT ON STAINTON STONE.—As a conclusion to the report, it may be satisfactory to name the actual stones used in the construction of the first portions (1840) of the Houses of Parliament. The foundation was laid in Penryn granite, rising to the level of the ground, therefore but little seen. Above it is Fogtor granite from Dartmoor. A small portion only of the superstructure, to the top of the basement windows, was built with Bolsover Moor stone from near Chesterfield; after which Anston stone was used for the remainder of the outside works. In the interior, Painswick and Caen stones have been employed; St. Stephen's crypt is of Beer stone. It has been asserted that had Government employed a supervision at the quarries to prevent imperfect blocks being sent up to London, the present unsightly appearance of many parts of the building would not have resulted.

THE UTILISATION OF WATER POWER.

THE utilisation of water power, which has been left unnoticed and unexploited for thousands of years, is now progressing by leaps and bounds. Not only have private initiative and private capital been extensively interested in this movement, but in various countries the Governments have more or less directly stepped in. This has hardly been done in a more rational manner anywhere than in France, where the Minister for Public Works has framed regulations for the most advantageous exploitation of water power. It is proposed, says Engineering, that the Government shall grant concessions for the use of water power to private individuals or to companies, as the case may be. The authorities hope that it will be possible, by properly utilising the water power of the country, to materially reduce the imports of coal, which, for the last ten years, represent an annual average of some £6,000,000. The aggregate

WATER POWER OF FRANCE

is estimated at about 10,000,000 horse-power, of which at present only about one-twelfth has been exploited. Most of the important waterfalls are located high in the mountains, and have hitherto had a merely local, if any, importance. There are, however, several good-sized waterfalls more favourably situated, although the distance has ceased to be a matter of great importance. In the neighbourhood of Lyons there is a Rhone fall estimated at 12,000 horse-power, the Loire is

thought capable of yielding some 1000 horse-power, easily available, etc. Apart from the merely financial advantages, a rational utilisation of the immense water power is also likely to prove a social benefactor, inasmuch as it is likely to decentralise numerous industries, calling forth industrial life in new places, and, it is hoped, give an impetus to many home industries which have nearly vanished, but for

which the easily disturable electric power is so admirably adapted. Also, the Swedish Government is keenly alive to the question of

ELECTRIC TRANSMISSION OF WATER-POWER, and one or two schemes of this nature have already been brought forward. The most recent is the utilisation of the large Eefkarleby waterfall, owned by the Swedish State, and

situated some fifty-five miles from Stockholm. The water-power of the fall is calculated at no less than 100,000 horse-power, but the present project only deals with one-fifth of this large total, which it is proposed to transmit to Stockholm. The power transmission is calculated to cost some £231,000, the power station, with machinery, about £178,000, and buildings, &c., in Stockholm, £28,000.

Quarry,	County.	Description.	Geological Formation.	Colour.	Weight per cubic foot.		Water absorbed per cubic foot.	Cubic feet to ton.	Price on Rail.	Rate to Newcastle.	Buildings where used.
					Dry.	Wet.					
Birtley ...	D.	Light brown, coarse; distinct bedding.	Coal measures.	Light brown.	—	—	—	15	1 1	1 11	Hartlepool Graving Dock. Grange Church, Sunderland. Havelock House, Sunderland. Y.M.C.A. Buildings, Newcastle. Post Office, Gateshead. Chollerford Bridge. Chesters' Boys' Brigade Home, Edinburgh.
Blackpasture ...	N.	Fine, even-grained, light coloured; no distinct bedding.	Yoredale beds.	Light creamy brown.	168 0	—	—	13 10 14	1 1	3 6	Otterburn Church. R.C. Schools, Durham. Tower, R.C. Church, Crook. Sea Wall, Seaham Harbour, for the War Department. New Town Hall, 1854-7. Gas Office. College of Medicine. College of Science, &c.
Blaxter ...	N.	Even-grained, medium, fine; no distinct bedding.	Yoredale beds.	Light brown.	—	150 0	—	15	1 2	3 6	Post Office, Newcastle. Masonic Hall, Newcastle. Monkwearmouth Church. Inside of New Town Hall, Sunderland, &c.
Brunton ...	N.	Fine, sharp grit sandstone; bedding obscure.	Coal measures.	Greenish grey.	134 0	141 0	5 1/2	16	1 3	5 0	Royal Observatory, Blackford Hill. Restoration of Dunblane Cathedral. Insurance Offices, Edinburgh. Hotel in Dunbar.
Carrs Hill ...	N.	Coarse, rather friable: sample too small to judge.	—	Light brown.	—	—	—	16	1 0	—	Middlesbro' Town Hall & Post Office. Barnard Castle Museum and Banks. Newcastle New Baths. Darlington Post Office.
Denwick ...	N.	Very fine-grained sandstone, traces of mica; bedding not distinct.	Yoredale beds.	Brownish grey with a tinge of green.	160 0	172 0	5 1/2	14	—	3 8	—
Doddington Hill..	N.	Fine grain, highly crystalline sandstone, quartz grains in contact, no apparent matrix; bedding not obvious.	Yoredale beds.	Purplish grey.	160 0	203 0	5 1/2	14	—	5 6	—
Dun House ...	D.	Fine-grained sandstone, with ferruginous spots: bedding not distinct.	Millstone grit.	Brownish cream.	160 0	—	5 1/2	14	1 1	4 8	—
Gunnerton...	N.	Fine-grained sandstone, quartz grains, in a siliceous matrix; mica.	Yoredale beds.	Light brown.	160 0	180 0	7 1/2	14	1 0	3 6	—
Heworth Bura ...	D.	Fine-grained sandstone, black carbonaceous specks, traces of mica; bedding obscure.	Coal measures.	Light bluish grey.	160 0	—	4 1/2	14	1 10	1 6	—
Heworth High Burn.	D.	Fine grain sandstone; bedding not observable.	Coal measures.	Light bluish grey.	152 0	—	4 1/2	14 1/2	2 0	1 6	—
Prudham ...	N.	Moderately fine grain sandstone, clear quartz grains, with ferruginous, earthy matter in base; traces of mica.	Yoredale beds.	Warm light brown.	—	145 1/2	4 1/2	14	1 0	2 6	—
Stainton ...	D.	Moderately fine grain sandstone, quartz grains in a siliceous matrix, ferruginous spots; traces of mica.	Millstone grit.	Brownish grey.	120 0	132 3	9 1/2	15	1 1	4 6	—
Wide Open...	N.	Clear quartz grain in a siliceous matrix, speckled with ferruginous matter; no bedding observable.	Coal measures.	Brownish grey.	130 3 1/2	133 13 1/2	7	16 1/2	2 0 to 2 6	—	—
Windy Nook ...	D.	—	Coal measures.	—	160 0	—	—	14	3 9	5 0	—
Woodburn... (Benson.)	N.	Crystalline micaceous sandstone, fine grain with earthy iron spots in matrix; no bedding observable.	Yoredale beds.	Light brown.	137 11	144 0	4 1/2	16	1 1	3 10	—
Woodburn... (Foster & Reid.)	N.	Rather coarse ...	—	Brownish grey.	160 0	—	—	14	1 3	4 0	—
Blyth ...	N.	Moderately fine grain ...	Coal measures.	Grey.	—	—	—	—	1 2	2 6	—
Blyth ...	N.	Coarse grain ...	—	Brown.	—	—	—	—	1 0	2 6	—
Burraodon ...	N.	Fine grain, sharp-gritted sandstone.	Coal measures.	Pale greenish grey.	134 14	142 9	6 1/2	16	1 3	—	—
East Ord ...	N.	Very fine-grained sandstone, grains in contact; no apparent matrix; bedding not obvious.	Yoredale beds.	Pinkish white.	128 5	137 2 1/2	7	16 1/2	1 3	—	—
Heddon ...	N.	Coarse quartz grains and decomposed felspar, with an argillaceous siliceous cement, ferruginous spots.	Coal measures.	Light brown ochre.	130 0	—	—	—	0 6 to 0 10	—	—
Kenton ...	N.	Fine-grain sandstone, siliceous base; bedding not distinct.	Millstone grit.	Greenish grey.	139 7 1/2	146 0 1/2	5 1/2	16 0 1/2	1 6	—	—
Nun Riding ...	N.	Fine-grain sandstone, with traces of mica; bedding not observable.	Millstone grit.	White.	136 9 1/2	142 15 1/2	5 1/2	16	1 6	—	—
Redgate ...	D.	Coarse sandstone, grains sub-angular in a siliceous matrix; bedding may be discerned.	Coal measures.	Light brown.	136 15 1/2	144 8 1/2	6	16	—	—	—
Hartford Bridge ...	N.	—	—	Light brown.	—	—	—	—	—	—	—

* N. and D. in this column refer to Northumberland and Durham.

MASONRY.

By JAMES WILDING.

V.

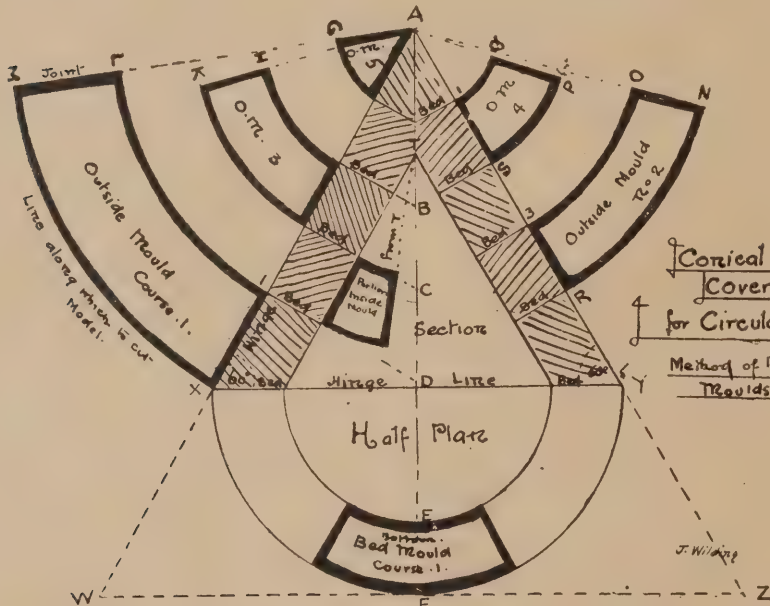
ENLARGING AND DIMINISHING MOULDS.—The method illustrated by this example is exceedingly simple. It has the further advantage of proportional enlargement and reduction in a case where the same depth is required with less projection. The details are usually supplied full size, sometimes, however, owing to the quantity required and the room taken up in an office by setting out full size, drawings a quarter or eighth full size are sent—it then becomes the duty of the mason to enlarge them for his own use.

In the example the section to be enlarged is half full size.

Draw the line A E at the angle of 45 degrees (this angle is not arbitrary, but is very convenient) equal to height of mould given, square out A H and E K. Mark the profile of mould inside this figure.

From E draw E B, a line at 45 degrees to E A, make E B equal to twice E A, from B square B C, from E square E D, both indefinite in length.

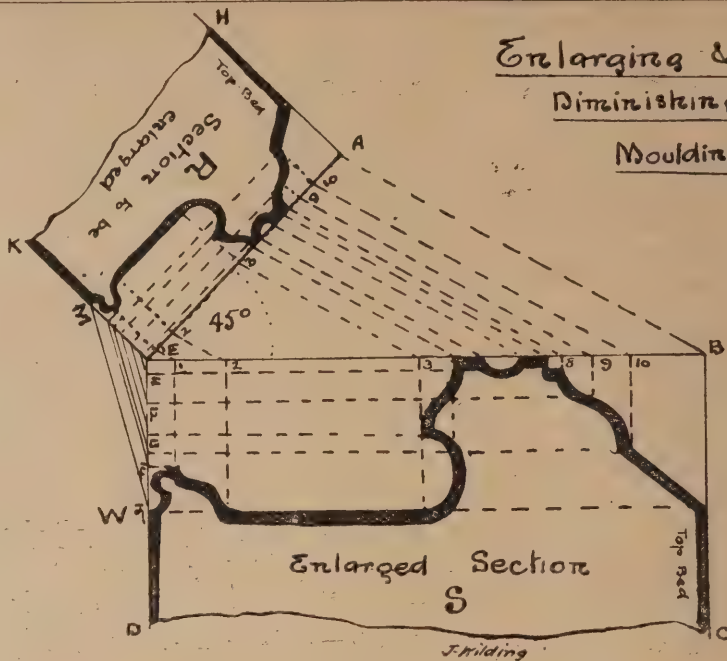
In section R, take any number of points in



the mould profile—draw them parallel to A H to touch the line A E, and from the points of contact draw lines parallel to A E to touch E K. Connect A B; parallel to A B draw the lines 1 to 10 to touch the line E B, draw these square from E B, indefinite in length. From E make E W equal to twice E M; connect M W. Draw the lines that touch E M between the said letters parallel to M W, numbered 11 to 15. Draw the lines E 11 to 15 parallel to E B. Through points of intersection trace the mould, which is thus enlarged to twice the size. From this the required mould is made.

DEVELOPMENT OF MOULD ON A SPLOYED JAMB TO BE APPLIED TO SEGMENTAL HEAD WITH A LEVEL SOFFIT.—It is often necessary to splay the jambs of a window internally to allow a greater amount of light to enter a building. In many instances the inside treatment is in plaster. In other cases the whole of the window treatment is stone. A simple mould is chosen in order to minimise difficulty. The first need is to understand thoroughly the relationship of the "Plan of the Splayed Jamb," and the Developed Section Mould. The first is horizontal; the second is developed on and from a vertical line. The line F E is to be regarded as a hinge line, and the developed section turned to the right until it is at right angles with the paper. The line X Y in plan is also to be regarded as a hinge line, and the plan turned up until it is at right angles with the paper; the two moulds are then turned in their relative positions one to

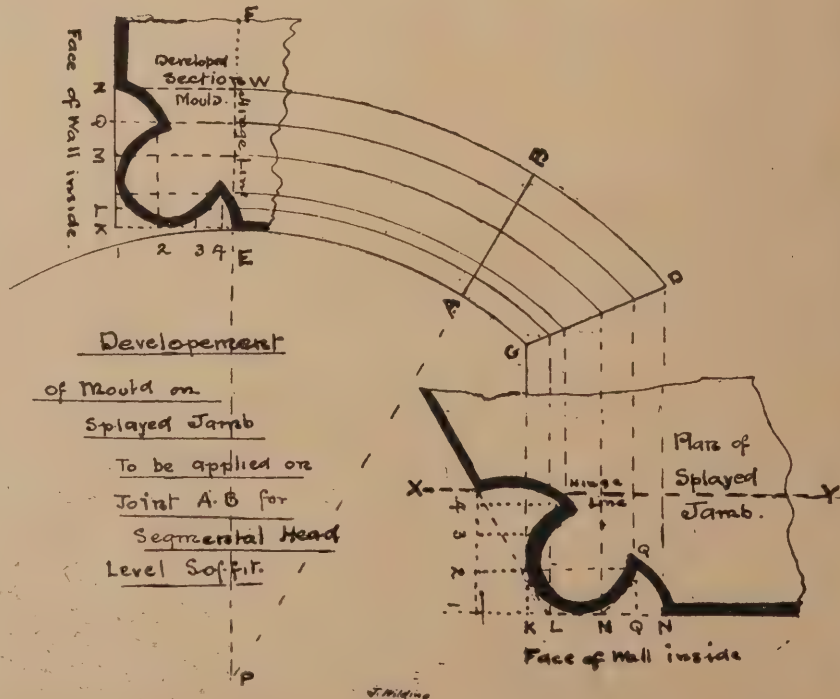
Enlarging & Diminishing Mouldings



the other. The point P is used to describe the segment E G; the developed section applies on any joint line drawn from point P, for example, A B. Carefully examine the plan of splayed jamb—K N is the portion that runs round the segmental head on the inside of the wall; erect the vertical line, K G, N D, with P as centre, and P A, P B as radii, draw the arcs G A E and D B W; connect G D; take any number of points in plan—L M Q—erect these lines to touch G D, from the points of contact on G P, and with the centre P, turn these divisions round to touch the vertical line E F, from E F square these out to the left—indefinite in length.

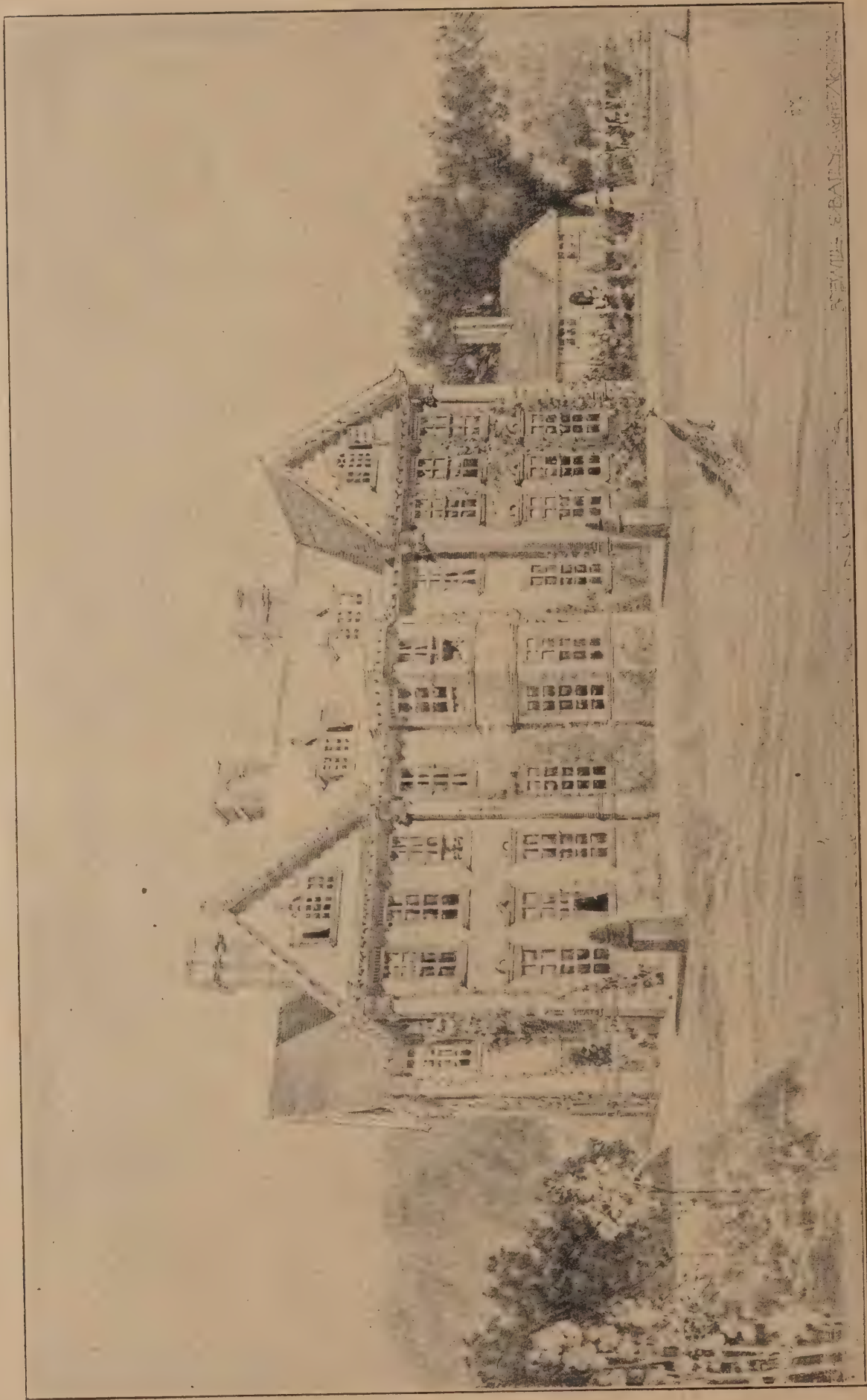
Now examine the plan again. The divisions 1, 2, 3, 4, X give the distance from the face line inside, transfer these to E K on the developed section. Draw from the points thus obtained perpendicular lines to intersect with the horizontals N Q M L K, through these trace the mould profile for the segmental head.

CONICAL COVERING FOR CIRCULAR TOWER.—All the problems with relation to the covering of circular buildings are replete with interest. Whilst the day of the great stone dome may be said to be over, many smaller examples are of daily occurrence. The first

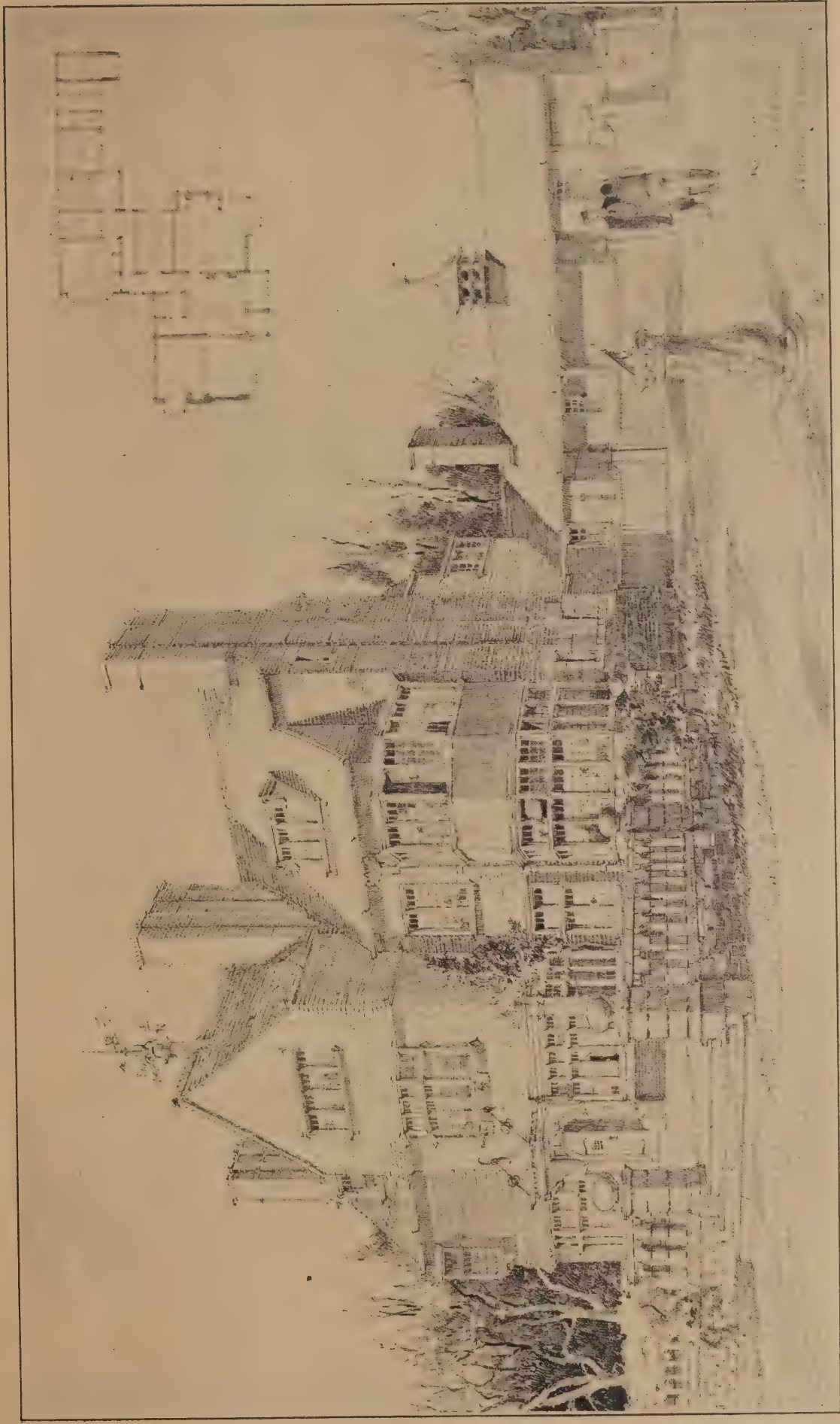


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SUPPLEMENT TO THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD, WEDNESDAY, JULY 13, 1898.



GARDEN FRONT OF NEW HOUSE AT EDWALTON. MESSRS. BREWELL AND BAILY, ARCHITECTS.



A HOUSE AT CHITWELL. ARTHUR MARSHALL, ARCHITECT.

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step towards a full understanding of this kind of construction is to master the underlying principles. No knowledge of masonry can be regarded as anything like complete unless the cone and its possibilities are clearly understood. The example before us is the easiest that could be used to illustrate the principles involved. These should be carefully studied, as further on, in the study of dome construction, reference will be made to them from time to time.

Only half plan is shown—that being sufficient for the present purpose—and a section through the cone. From examination of the figure it will be seen that the beds are square to the rake of the cone, each complete ring thoroughly tying itself, and preventing any sliding motion. Usually the most difficult line to explain is the curved line, X M, at the left-hand side of the figure, and the bottom line of outside mould No. 1. Taking the apex A, of the cone as a centre, and the length, A X, as radius, describe the arc, X M, indefinite in length. If it is desired to make this arc the full length of the circular plan, the plan must be measured. A simple way of doing this is shown in the example. A Y, A X being at 60 degrees to X Y, produce A X to W and A Y to Z. Through F draw W Z parallel to X Y. W Z is the length of the curved line X F Y, and thus half the length of the full circle. With A as centre, describe I L from A, and from point M (which should be a convenient length, say 3ft. or 4ft.) draw the joint line L M. This operation is repeated for each course; for the sake of clearness it is done alternately on each side. These are the moulds for the outside. If this drawing is made on thin cardboard, turned up on line X Y at right angles to the paper, and the several moulds cut out and bent round into position, it will be seen the line X M (continued to the length W Z) will sit level on X F Y; and the other moulds, cut and bent into position, will each rest on the line below it, and give a level bed. If the student has grasped the principle of obtaining the length of X F Y by means of the line W Z, he will be able to apply it to obtain the length of R N and S P respectively. The inside developments are obtained in a similar way to the outside ones—one small portion is indicated in the example. The student is recommended to take pains to master the principles here explained; he will find them of infinite value when further problems are studied. The points on A D, lettered C B, etc., give the centres from which the various bed moulds are struck, and to which all joint lines radiate on plan of each respective course.

VENTILATION OF THE FRAM.

THE new expedition to the North Pole, under the leadership of Otto Sverdrup, Captain of the Fram during Dr. Nansen's expedition, left Christiania in that now historic craft on its second adventurous voyage to the White North on Friday, 24th June. Considerable alterations have been effected in the Fram, which is now much more comfortable and seaworthy than when it first set out for the Pole, five years ago to the day. The upper deck has been converted into the main, and is entirely roofed in by a new flush deck. The saloon, which is some 18ft. square, is situated forward. Special provision has been made for the ventilation of this part of the vessel, which is effected by the "Boyle" system of ventilation originally designed for the Fram (as per the accompanying diagram) by Messrs. Robert Boyle and Son, Ventilating Engineers, of London and Glasgow, to whom Dr. Nansen at that time wrote:—"I am convinced that your ventilating system will prove to be of the utmost value in those regions where the ship for years will be our dwelling, and where, of course, good ventilation is *conditio sine qua non* for our health and sanity." On the Fram, as altered, the ventilators are fixed on the flush deck, so that the wind can reach them freely and unobstructedly from every quarter, ensuring their efficient action with the wind blowing from any direction.

SANITARY CONGRESS.

THE preliminary programme of the sixteenth congress of the Sanitary Institute to be held in Birmingham, from September 27th to October 1st, has now been issued. The president of the congress is Sir Joseph Fayrer, Bart., K.C.S.I., M.D., F.R.C.P., F.R.C.S., LL.D., Q.H.P., F.R.S. Dr. Christopher Childs, M.A., D.P.H., will deliver the lecture to the congress, and Dr. Alex Hill, M.A., J.P., Master of Downing College and Vice-Chancellor of Cambridge University, will deliver the popular lecture. Excursions to places of interest in connection with sanitation will be arranged for those attending the congress. A conversation will be given by the Right Hon. the Lord Mayor (Councillor C. G. Beale), and a garden party, at the Botanical Gardens, Edgbaston, will be given by members of the sanitary committee. It appears from the programme that over 300 authorities, including several county councils, have already appointed delegates to the congress, and, as there are also over 2000 members and associates in the Institute, there will probably be a large attendance in addition to the local members of the congress. In connection with the congress, a Health Exhibition of apparatus and appliances relating to health and domestic use will be held as a practical illustration of the application and carrying out of the principles and methods discussed at the meetings; which not only serves this purpose, but also an important one in diffusing sanitary knowledge among a large class who do not attend the other meetings of the congress. The congress will include three general addresses and lectures; three sections meeting for two days each, dealing with (1) Sanitary Science and Preventive Medicine, presided over by Alfred Hill, M.D., F.R.S. Edin., F.I.C., M.O.H., Birmingham; (2) Engineering and Architecture, presided over by W. Henman, F.R.I.B.A.; (3) Physics, Chemistry, and Biology, presided over by G. Sims Woodhead, M.D., F.R.C.P., F.R.S. Edin.; five special conferences: Municipal Representatives, presided over by Ald. W. Cook, Chairman of the Health Committee, Birmingham City Council; Medical Officers of Health, presided over by John C. McVail, M.D., D.P.H., F.R.S. Edin.; Municipal and County Engineers, presided over by T. de Courcy Meade, M.Inst.C.E.; Sanitary Inspectors, presided over by W. W. West, Chief Sanitary Inspector, Walthamstow; Domestic Hygiene, presided over by Mrs. C. G.

Beale (the Lady Mayoress). The local arrangements are in the hands of an influential local committee, presided over by the Right Hon. the Lord Mayor of Birmingham, with Prof. A. Bostock Hill, M.D., D.P.H., W. Bayley Marshall, M.Inst.C.E., J. E. Willcox, Assoc. M.Inst.C.E., as honorary secretaries.

Trade and Craft.

HALL'S SANITARY WASHABLE DISTEMPER.

A new sanitary water-paint which is a strong disinfectant and pleasant to look upon—this, in short, is Hall's Sanitary Washable Distemper. Its aim is to combat the sanitary dangers of our walls, and at the same time to afford a wall-covering in every way desirable. Herein, under the favourable auspices of Messrs. Sissons Bros., Limited, of Hull, whose name on a tin of paint has grown to be recognised as the hall-mark of excellence, this distemper has attained considerable success. Public apathy cannot long withstand real merit. Genuine worth, as a rule, meets with recognition sooner rather than later—it has been sooner in the case of Hall's Sanitary Washable Distemper. We believe the patent is a good one; the trade thinks so, too. It is a death-dealer to all insects, yet it is free from Caustic and Alkali. It is non-poisonous and clean in working; it may be applied to a damp wall, and wherever used it will not scale off, but preserve its original freshness in the many tints in which we see it. Another desideratum is its ease of application. No solution or liquid other than hot or cold water for mixing is required, and the most inexperienced dabbler in paint inevitably succeeds in using Hall's distemper. Its covering power and durability, it is claimed, are incomparably great, and whilst this patent is suitable for all kinds and conditions of rooms and of countries, it is especially recommended for colonial work. Combining, as it does, so many practical advantages with a very considerable saving in the cost of materials and labour, this distemper seems to justify the wide popularity it has already attained.

THE Great Western Railway Company is about to undertake an important alteration on the Great Western approach side of its Cardiff station. The Company has decided to continue the subterranean passage from the down side straight into the roadway.

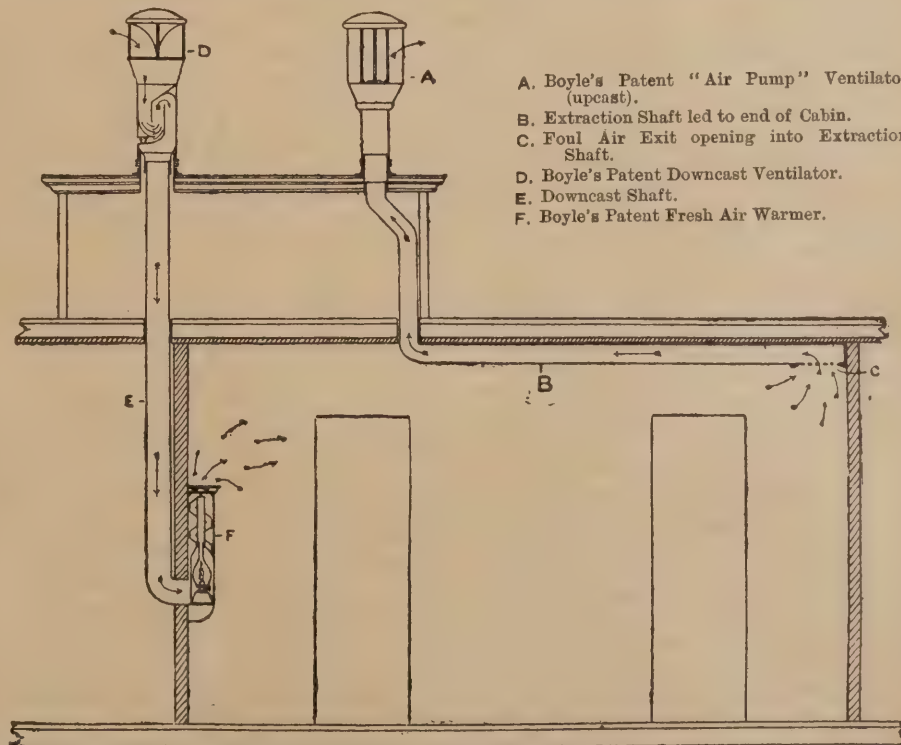


DIAGRAM SHOWING SYSTEM OF VENTILATION ADOPTED ON THE "FRAM."

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
July 16	Leeds—Rebuild Hotel	Unitel Methodist Free Church	T. Winn, 92, Albion-street, L. eis.
" 16	Marchwiel—School	Murrayfield Real Estate Co. Ltd.	E. Jones, 12, Temple-row, Wrexham.
" 16	Midway—Chapel		Rev. T. S. Clarke, Newhall, Midway.
" 16	Murrayfield—Ten Houses		Dunn and Findlay, 35, Frederick-street, Murrayfield.
" 16	Norton-in-Hales—Repair Church Tower		Lynham, Beckett, and Lynham, Stoke-upon-Trent.
" 16	Moss Side—Schools	School Board	Potts, Sons and Pickup, Victoria-buildings, Manchester.
" 16	Salisbury—Infirmary		Harding and Son, 53, High-street, Salisbury.
" 17	Arleford—Schools	School Board	J. S. Moffat, 53, Church-street, Whitehaven.
" 18	Belfast—Church	Governors of Christ's Hospital	W. J. Fennell, Chichester-street, Belfast.
" 18	Abingdon—Three Houses	Governors of Grammar School	J. G. T. West, The Knowle, Abingdon.
" 18	Shepton Mallet—School		A. E. Nalder, Shepton Mallet.
" 18	Barton Stacey—Three Cottages		Swan Sun, Barton Stacey.
" 18	Cullingworth—Sunday School		Judson and Moore, Keighley.
" 18	Dolbenmain—Church		P. S. Gregory, Bangor.
" 18	Halifax—Villa		H. Hutton, Town Hall Chambers, Sowerby Bridge.
" 18	Halifax—Villa		Geo. Buckley and Son, Tower Chambers, Halifax.
" 18	Leigh—Bank Premises	Savings Bank Trustees	J. H. Stephen Leigh, Lancashire.
" 19	London, E.C.—Conventances	Corporation	Corporation Engineer, Guildhall.
" 19	Malvern—Post Office	Commissioners	Storey's Gate, Westminster, S.W.
" 19	Hendrefragan Cottage	Great Western Railway Co.	Engineer, Newport Station.
" 19	Swindon Sorting Room	Great Western Railway Co.	Stationmaster, Swindon Station.
" 20	Scunthorpe—Chapel		J. N. Dodson, 2, Manor-street, Hull.
" 20	Dewsbury—Twenty Shops		J. Kirk and Son, Dewsbury.
" 20	Wicklow—Rebuild Quay Wall	Harbour Commissioners	F. W. McPhail, Sec. Harbour Commissioners, Wicklow.
" 21	Clonsilla—Bridge		Mr. Ross, Brechin-road, Kirmuir.
" 21	Grange-over-Sands—Public Hall, &c.	Urban District Council	J. Hutton, Kendal.
" 21	Newhaven—Additions to Workhouse	Guardians	Clayton and Black, 152, North-street, Brighton.
" 21	Barrow—Wing to Hospital		Austin and Paley, Castle Hill, Lancaster.
" 23	Colne—Schools Library	Corporation	Woodhouse and Willoughby, 190, King-street, Manchester.
" 26	West Ham—Twenty-nine Houses	County Borough	L. Angel, Town Hall, Stratford, E.
" 26	Halifax—Workshops, &c.	Lunby, Son, and Wood	Horsfall and Son, 22a, Commercial-street, Halifax.
Aug. 5	Nottingham—Workhouse, &c.	Guardians	A. Marshall, King-street, Nottingham.
No date.	Brecon—Operating Room, &c., Brecon Infirmary	School Board	J. B. Wilson.
"	Cardonald—Extension to Board School	A. J. Lucking and Co.	Kerr and Watson, Johnstone.
"	Colchester—Shops, &c.		C. E. Butcher, 3, Queen-street, Colchester.
"	Coventry—Sunday Schools, &c.		G. and P. Steane, 22, Little Park-street, Coventry.
"	Darlington—Business Premises	Kelly and Co.	Martin and Davies, Skinnergate, Darlington.
"	Dearham—Cottages		J. Kirkbride, Dearham.
"	Holbeck—Eight Houses		D. Dodgson, 86, Albion street, Leeds.
"	Keswick—Repair Eight Houses		B. Ralph, Keswick.
"	Keighley—Shops, &c.	Gas Company	J. Judson and Moore, Keighley.
"	Long Eaton—Offices, Show-rooms, &c.		E. R. Ridgway, Long Eaton.
"	Plymouth—Church Tower		G. H. Fellowes Prynne, 6, Queen Anne's-gate, Westminster.
"	Selston—Chapel		W. W. Jepson, Top Mexborough, Selston, Notts.
"	Starbeck—Villas	H. H. Capes	A. A. Gibson, 8, Cambridge-crescent, Harrogate.
"	Whitehead—Three Houses		Russell and Lockwood, 16, Waring-street, Belfast.
"	Nettleham—Mansion	S. Wilson	W. Mortimer and Son, Lincoln.
"	Haddington—Bridges		W. Mortimer and Son, Lincoln.
"	Crofton—Schools		W. H. Dinsley, Chorley, Lancs.
"	Clifton—Six Shops and Houses		La Trobe and Weston, 20, Clare-street, Bristol.
"	Nottingham—Block of Shops		E. R. Sutton, Bromley House, Nottingham.
ENGINEERING—			
July 16	Manchester—Wrought Iron Bridge	Corporation	Secretary, Waterworks, Town Hall, Manchester.
" 16	Nelson—Reservoirs	Corporation	Clerk, Town Hall, Nelson.
" 18	London, E.C.—Bridge Work		76, Gresham House, Old Broad-street, E.C.
" 18	Amsterdam—Craues	Town Council	Municipal Printing Office, Amsterdam.
" 19	North Berwick—Reservoir, &c.	Commissioners	Leslie and Reid, 72a, George-street, Edinburgh.
" 19	London, S.W.—Bridge	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 19	Portsmouth—Valves	Urban Sanitary Authority	Borough Engineer's Office, Town Hall, Portsmouth.
" 20	Westhampton—Boiler, &c., at Union House	Guardians	R. G. Roper, Westhampton Union Offices, Chichester.
" 26	Bucklow—Sewerage Works	Rural District Council	J. M'Kenzie, 7, Market-street, Altrincham.
" 29	Coventry—Pumping Station	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
Aug. 1	Athy—Water Supply	Guardians	Dr. J. Kiribridge, Athy, Ireland.
" 1	Cairo—Bridge		Inspector of Irrigation, Second Circle, Cairo.
No date.	Burnham-on-Crouch—Water Mains	Urban District Council	Town Clerk, High-street, Burnham.
IRON AND STEEL—			
July 19	London, W.—Manhole Covers, &c.	Acton District Council	D. J. Ebbetts, 242, High-street, Acton.
" 19	London, W.—Girders	Great Western Railway	Paddington Station.
Aug. 2	Ottawa, Canada—Supply of Steel Rails		L. H. Jones, Dept. of Railways & Canals, Ottawa, Canada.
" 28	Coolgardie, Australia—Steel Pipes	Government of Western Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
ROADS—			
July 16	Swindon—Road-making, &c.	New Town Urban District Council	H. J. Hamp, Regent Circus, New Swindon.
" 16	Benfield—Roads	Urban District Council	J. Dixon, Surveyor, Benfield.
" 18	Larne—Roads	Edward Coey	W. J. Fennell, 11, Chichester-street, Belfast.
" 18	Walsall—Paving	Corporation	J. R. Cooper, Town Clerk, Walsall.
" 19	Croydon—Improvement Works	Town Council	Surveyor's Office, Town Hall, Croydon.
" 19	London, E.—Asphalting, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 19	London, E.C.—Paving	Corporation	Corporation Engineer, Guildhall.
" 19	Carlton—Road-making	Urban District Council	R. Whitbread, Burton-road, Carlton.
" 26	West Ham—Streets	County Borough	L. Angell, Town Hall, Stratford, E.
SANITARY—			
July 16	West Bridgford—Sewers	Urban District Council	W. Pare, West Bridgford.
" 18	Newton Stewart, N.B.—Sewerage Works	Burgh Commissioners	Gilbert Thomson and Deas, 53, Bothwell-street, Glasgow.
" 18	Barnet—Sewers	Urban District Council	W. H. Maysbridge, 40, High-street, Barnet.
" 19	Croydon—Sewers	Corporation	Borough Engineer, Town Hall, Croydon.
" 19	Honley—Sewerage Works	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 19	South Croxland—Sewers	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 20	Boston Spa—Sewers	Wetherby Rural District Council	J. Waugh, Sunbridge-chambers, Bradford.
" 20	Wolverhampton—Sewers	Sewerage Committee	J. W. Bradley, Town Hall, Wolverhampton.
PAINTING AND PLUMBING—			
July 16	Bristol—Painting Schools	School Board	Offices of the Board, Bristol.
" 18	Keighley—Painting Hospital	Hospital Board	Judson and Moore, York-chambers, Keighley.
" 19	Brighton—Painting Workhouse	Guardians	B. Benfield, Parochial Offices, Princes-street, Brighton.
" 19	Portsmouth—Painting Schools	School Board	Board Surveyor, Cambridge Junction, Portsmouth.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
July 16	Beverley—Extension of Offices		J. Bickersteth, County Hall, Beverley.
" 27	West Hartlepool—Refuse Destructor		J. W. Brown, Borough Engineer, West Hartlepool.
" 27	Wivenhoe—Water Supply Scheme		Urban District Council.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
" 16	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 31	Glasgow—City Improvements	£100, £50, £25	Glasgow Corporation.

PROPERTY & LAND SALES.

Close to railway stations on L. and N.W., Midland, Met., and N.L.; also bus routes to City and West-end.

MR. LEOPOLD FARMER will SELL by AUCTION, at the Mart, E.C., on WEDNESDAY, JULY 27th, 1898, at Two o'clock, the following:—**WEST HAMPTON.**—With possession.—3, Sher-riff-road, West-end-lane.—Freehold detached Residence, having five bed and dressing rooms, bath, two reception rooms, conservatory, usual offices. No basement.—Solicitors, Messrs. Fytche, Field, and Baker, 23, John-street, W.C.

ST. JOHN'S WOOD.—With possession.—117, Alexandra-road.—Long Leasehold Residence, having six bed and dressing rooms, bath, three reception rooms, usual offices. Good garden.—Solicitors, Messrs. Yeo and Co., 41, Finsbury-pavement, E.C.

Particulars and conditions of sale at the Mart, E.C.; the respective Solicitors; and the AUCTIONEER, 46, Gresham-street, E.C., and Kilburn, N.W.

Little Ilford, within a few minutes from East Ham, Ilford, and Manor Park Stations.—Fourth Auction Sale.

THE PREMIER LAND COMPANY

(Limited) having sold every lot at their previous auction sales, will SELL by AUCTION, at the PUBLIC HALL, Plashet-grove, East Ham, on WEDNESDAY, JULY 20th, 1898, at 7.30 in the evening precisely, 120 valuable FREEHOLD PLOTS, including frontages to Rectory-road and Elsenham-road, also valuable shop plots in Church-road. No tithe or land tax. Payment by instalments, spread over 44 years, if desired. Possession on payment of deposit. Free conveyances. The new roads are formed and kerbed, and have separate sewers and surface water drains.—Particulars, with plan and conditions of sale, may be obtained, when ready, at the place of sale; the principal hotels in the neighbourhood; of the PREMIER LAND COMPANY (LIMITED), 10, New Broad-street, E.C.; Messrs. TAYLOR and TAYLOR, Solicitors, 10, New Broad-street, E.C.; or of Mr. H. A. RAWLINS, Surveyor, 45, Queen Victoria-street, E.C.

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Freeholder's Surveyors and Architects, Messrs. CHESTERTON and SONS, 51, Cheapside, E.C.

Lambeth.—Valuable Ground Rent, with Reversion in 1916.

MESSRS. ARBER, RUTTER, and WAGHORN will offer for SALE, at the MART, Tokenhouse-yard, City, on WEDNESDAY, JULY 20th, at One o'clock precisely, a well-secured COPYHOLD GROUND RENT of £20 10s. per annum, arising out of the five messuages, Nos. 90, 92, 94, 96, and 98, Vauxhall-walk, with reversion at Christmas, 1916, to the rack rents, estimated at £175 per annum.

Particulars of sale of Messrs. WEBB, NICHOLS, and Co., Solicitors, 11, Argyl-street, W., and of the AUCTIONEERS, 1, Mount-street, W.

Unusual opportunity of acquiring a high-class Marine Freehold Residence at Bognor-on-Sea.—Purchasers need only pay a deposit of 10 per cent., the balance by half-yearly instalments extending over nine years.—The imposing House, No. 2, Park-terrace, in an exceedingly pleasant position on the esplanade, facing the sea. It contains eight airy bedrooms, four spacious reception rooms, and ample domestic offices. Suitable for a high-class boarding house. Also Freehold Houses, 3 and 4, Lansdown-place; let at £65 and £70.

MR. GEORGE F. HARRINGTON will SELL the above by AUCTION, at the MART, London, E.C., on JULY 26th, at TWO, in three lots.

Particulars of W. J. MYATT, Esq., Solicitor, 23, Abchurch-lane; and of the AUCTIONEER, 16, Abchurch-lane, E.C.

By order of the Trustees of the late Robert James Chaplin, Esq.—Cattord.—To Builders and others.—10a. or 18p. of Freehold Land, situate in a first-class position, with possession at Christmas next, when part will be available for building, having existing frontages; also a Freehold Ground Rent of £30 a year, secured on residences, in the same neighbourhood, which will be Sold by Auction by

MR. GEORGE F. HARRINGTON, at the MART, E.C., on JULY 26th, at TWO, in two lots.

Particulars of Messrs. BADHAM and WILLIAMS, Solicitors, 3, Salters' Hall-court, E.C.; and of the AUCTIONEER, 16, Abchurch-lane, E.C.

FREEHOLD BUILDING LAND.—TO BE

SOLD, a valuable BUILDING SITE, with extensive frontage to Lordship-lane, East Dulwich, and having an area of over 45,000ft. super. Suitable for the erection of a school or public building. Price £2000. Also several smaller plots, prices £140 to £600.—Plans and particulars of Mr. A. R. VIZARD, 12, Regent-street, Pall-mall, S.W.

MESSRS. GREEN and SON, AUCTIONEERS and SURVEYORS, 23 and 29, St. Swithin's-lane, London, Beg to announce that their SALES by AUCTION of FREEHOLD, LEASEHOLD, and COPYHOLD PROPERTIES, Ground Rents, Life Policies, and Reversions take place at the MART on the LAST FRIDAY in the MONTH, and on such other occasions as may be arranged.—Particulars are invited 21 days prior.

MESSRS. GREEN and SON undertake SURVEYS and VALUATIONS of LAND and HOUSE PROPERTIES, as well as Machinery and Plant, for

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R.I.B.A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

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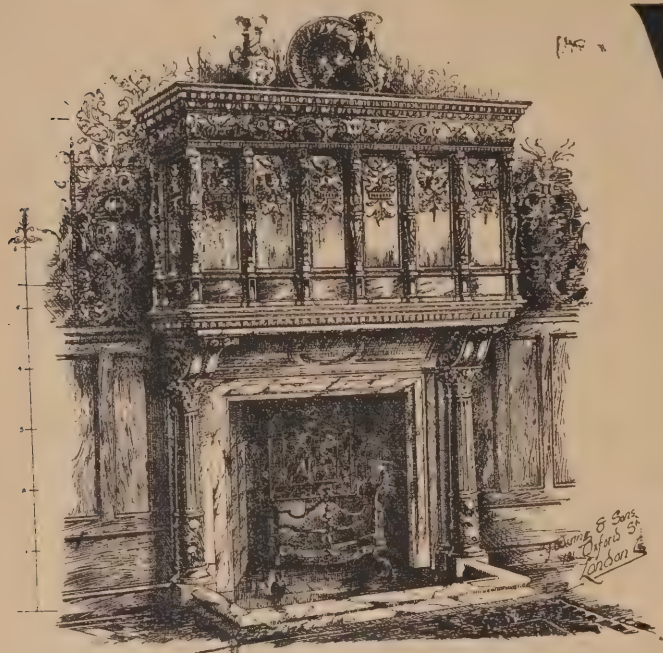
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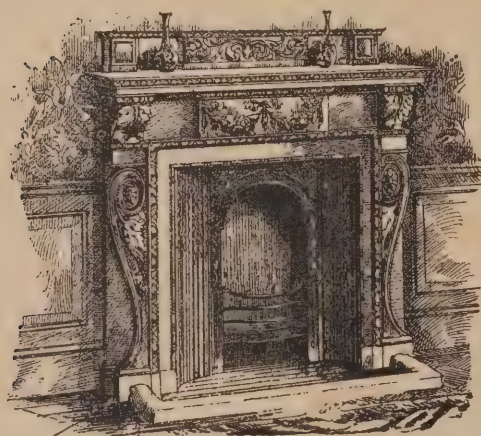
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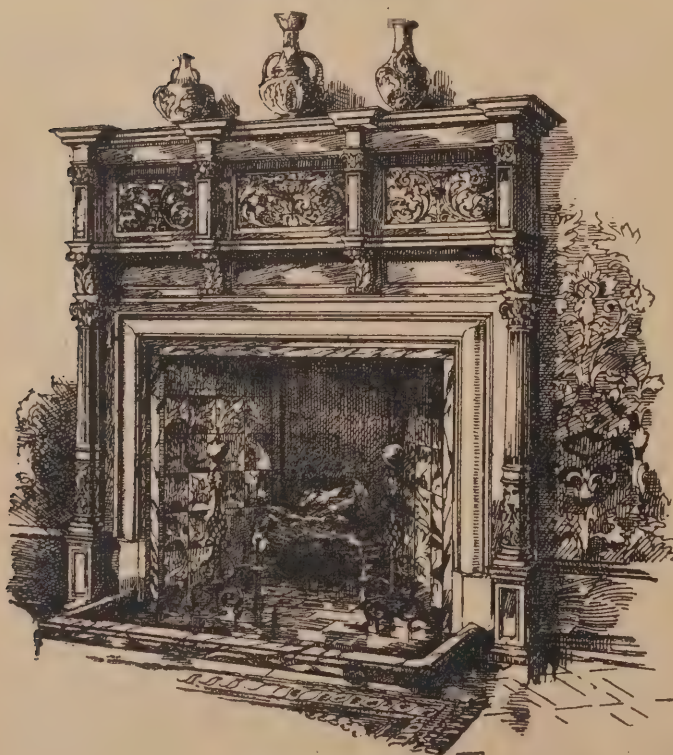
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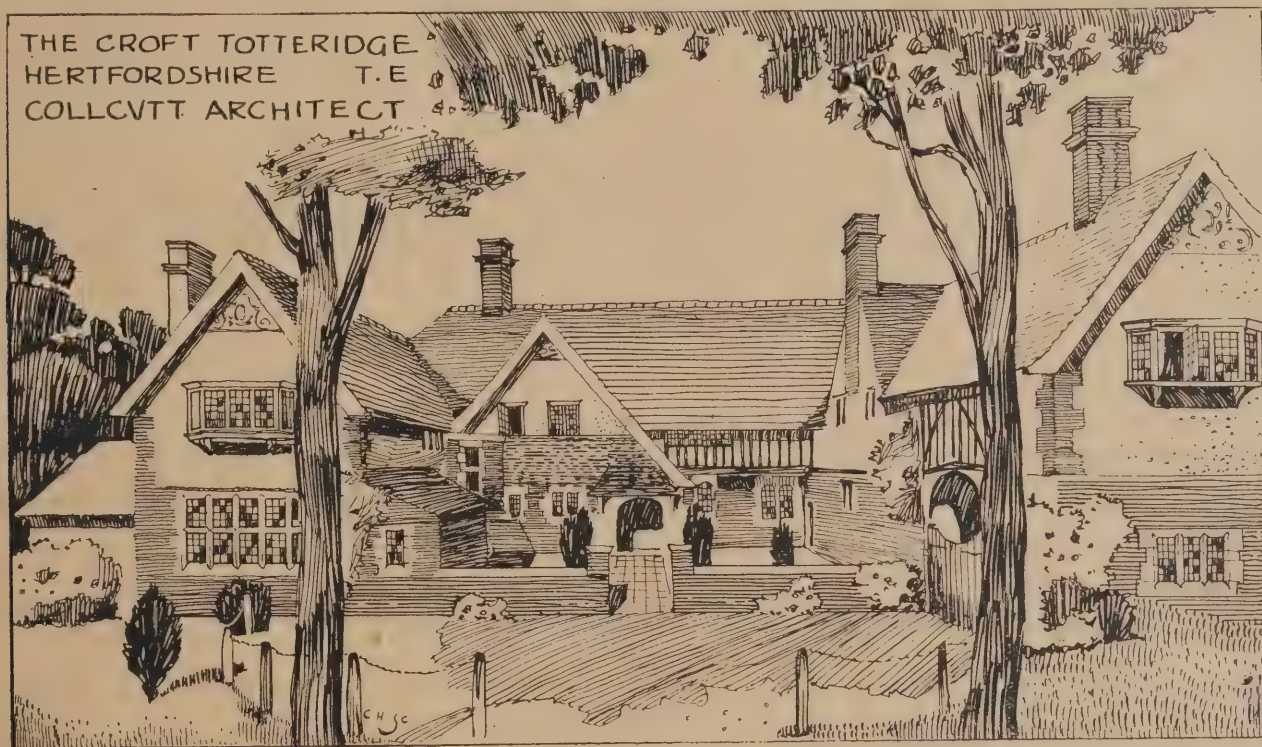
A Line of Cleavage in Professional Opinion.

It has often seemed to us that insufficient thought is given to the question underlying the handling of old buildings by the older and more modern schools of architects. We do not mean the question of "repair" versus "restoration," but the more funda-

passes out of the region of ancient buildings and affects our whole conception of original creativeness in modern Architecture. "Let us have no more fourteenth century reconstructions," say the younger school. "Let us have no more north porches to Westminster Abbey"—"a very clever diagram" as William Morris called it—not in the least interesting as modern Architecture; but only as a personal expression of the late Mr. Pearson's conception of something that never existed. We do not want to put back the clock any more, we want to go on. If new building is to be, it shall be in the spirit and manner of our own times, and not a falsification of bygone times, and our reverence for what is best in our own imagination—our own creative instinct—shall make us doubly conservative of what is still left to us of the great creation of times past. Let us build new buildings, but let us save the old. That, we take it, is the spirit in which the younger school is setting to its work.

C. R. A.

draw attention and condemnation to the latest street excrescence which is springing up in many of our most important thoroughfares. It consists of a hexagonal telephone box, about 5ft. in diameter, and 18ft. in height, with an attenuated dome in ornamental (?) cast-iron, from which emanates the telephone wire, which has to soar away to the nearest pole, generally some 40ft. or 50ft. higher up. The windows of the box are carefully plastered over with gelatinous advertisements, with the dual object, apparently, of preserving privacy for the occupant of the box, and parading publicly the advantages of the advertised articles. One had thought that it would have been difficult to conceive anything in worse taste than the newspaper kiosks which exist in Hyde Park and elsewhere; but this latest London structure eclipses anything we have yet had hoisted upon a long-suffering public. Another matter which should not be left unnoticed is the increase of corrugated iron cabmen's shelters, which are



A SKETCH AT THE ROYAL ACADEMY.

mental principles that underlie and determine what may not unreasonably be termed a distinct line of cleavage in professional opinion. It is a matter which often comes to a head when an important case has to be considered upon its merits, when some eminent Academician is upon one side and the Anti-Serape upon the other; then there is a call to arms, and the rival schools for the most part divide themselves into two camps. The controversy over the Peterborough front was a case in point. Those who looked below the surface in that controversy will have observed how most of the professional signatories to what Mr. T. G. Jackson—perhaps, quite truly—called at the time the "irrational petition" to the Dean and Chapter, were of the younger generation, pupils, for the most part, of Mr. Bodley, Mr. Norman Shaw, the late John Sedding, and others. Such of the old men as might have signed stood aside on the ground of professional etiquette, and, doubtless, where conviction was not strong, such etiquette was only right and proper. To begin with then, we are observed in a matter of training. The older school—to which, among others, Sir Arthur Blomfield may be said to belong—has been trained. The question thus becomes a large one. It

"Boxes, Shelters, and Hoardings."

FROM time to time the passer-by receives little shocks of surprise at some excrescence of street architecture, which, more perhaps from its newness than its vulgarity, claims the attention of the least observant. Yet, as the days go by, and he passes and repasses it, his eye gradually accustoms itself to the abortion, which seemingly has settled into quite a congruity with its environments. It is quite a depressing state of things when one discovers that some particularly hideous object has ceased to irritate one, and that, without being aware of the fact, one has grown to accept it. Whilst, to some degree, at all events, this is inevitable in the case of permanent buildings, which, *volens volens*, one is forced to suffer, this does not apply to structures which are more or less of a temporary nature. It seems therefore disastrous to accustom one's eye to that which could easily be improved or removed, but which—so long as no protest is raised against its existence—will flourish in its nastiness, and probably be perpetuated *ad infinitum*. One hopes that it is not already too late to

wretched travesties of the nice little shingle-roofed structures designed by Mr. Max. Clarke. To have these pleasing and picturesque features caricatured in corrugated-iron painted green, is not only in execrable taste, but extremely unfair to the architect who designed the original shelters. Arson being a criminal proceeding, all that one can do under the present circumstances is to agitate for the demolition of these excrescences, to which one trusts one will never grow reconciled. Fortunately the passer-by sometimes receives very pleasant surprises, and it is with real satisfaction that one notices the enormous improvement in the decoration of the hoardings and gantrys which have of late appeared in the streets. The extremely original gantry designed for the Kodak premises in Regent Street by Mr. George Walton, is one of the cleverest that has yet appeared in London, although hardly equal to the "Peacock hoarding" designed by the same artist. The gantry which has just been decorated outside Messrs. Gillow's premises in Oxford Street, from the designs of Mr. Frank Murray, is perhaps as pleasing as any; depending, as it does, solely upon the effect of stencilling an unbroken surface.

H. S. M.

ANTIQUARIAN LONDON.

A FAMOUS OLD PRIORY.

THE Bristol and Gloucestershire Archaeological Society has just concluded a week's tour of inspection of features of antiquarian interest in London. The fine old Church of St. Bartholomew the Great, Smithfield, was among the objects claiming attention. Mr. Aston Webb, architect to the Restoration Committee, gave some interesting facts, historical and architectural, concerning the old fabric. Mr. Webb said they were standing in a highly-favoured spot in London, as not so very long ago that part of the metropolis was covered by three great foundations, of one of which he proposed to speak. The priory where they were was founded by Rahere, who lived in the time of Henry I., and in a witty court he was considered one of the wittiest. Henry lost his son and heir in the White Ship, and this sad occurrence altered the whole character of the English Court, so that devotion took the place of pleasure, and Rahere changed his course of life. About 1120 he went on a pilgrimage to Rome, and the tradition ran that while in that city he caught a fever, and while recovering he undertook that if ever he returned to England he would

FOUND A HOSPITAL.

When convalescent he had a dream, in which he was carried into the air by an animal with eight legs which threatened to drop him into an unfathomable pit. As he was in this perilous position St. Bartholomew was supposed to have come to his assistance, and the saint told him that if he built a church he would recover. He agreed to build a church and hospital when he returned to London, the saint promising that God would inhabit the church and hallow and glorify it, and that His eye would be open and His ear attentive day and night to all souls, and that everyone who asked should receive a blessing. That blessing was believed by many pious persons in the parish to rest upon the church at the present time. Rahere fulfilled his promise, and a large space in Smithfield was granted to him. The hospital became great and flourishing, and over 150,000 people were every year relieved in sickness in St. Bartholomew's Hospital. Rahere joined the monks of the Augustinian order, and founded the church in which they were assembled. He lived to complete the portion of the church in which they stood, and became the first prior, continuing in office for thirty years. It was

THE OLDEST CHURCH IN LONDON;

the chapel at the Tower, which was hardly a church, being about fifty years older. Mr. Webb proceeded to describe the structure as Rahere had it carried out, and spoke of the different works which had been permitted to encroach upon the original holding, one of which was a fringe factory which overhung the altar. There was also a forge, and a transept was obscured by a covering of canvas. Fire destroyed some of the surroundings, but though they were burnt the structure of Rahere was left intact. Mr. Webb stated that when he was asked to take in hand the restoration it was agreed to purchase the factory and build a portion of the apse in the church. Directly they began to take down the plank wall which had been built at the east end, they found the tracing of the great windows which had been put in in the fourteenth century, and the original Roman triforium. Schools had been built on a portion of the spot occupied by the fringe factory. Then the forge was acquired and pulled down, and the south transept was erected. The stone used was of a character to tone down the

MAGNIFICENT ANCIENT WORK

against which it abutted. Mr. Webb pointed out a peculiarity in the structure, that pointed and circular arches, both of Norman date,

existed, and remarked that there were theories started concerning these features, but the matter was not satisfactorily settled. As there was considerable criticism passed on the restoration of old buildings, he might remark that they had not removed a single stone of the original work, and though a great deal had been done there, he mentioned that with some pride. They had no stained glass or other ornaments, though offers were made of them, as they desired to retain the severity and simplicity of the Norman work. At the close of Mr. Webb's address, the party proceeded to examine the different portions of the interior. The church, as seen to-day, is but a fragment of what was one of the largest monasteries in London. It consists of one bay of the original nave, constructed about 1150; a crossing above which once rose a lantern tower, destroyed in 1630; two shallow transepts, both re-built in recent times; a choir with ambulatory encircling its north and south sides and east end; and a Lady Chapel. The ground plan of the choir is now much the same as when completed in the middle of the 12th century, but the superstructure has passed through many changes. The present Perpendicular clerestory was substituted for the Norman clerestory; the roof also was taken down and the present high-pitched roof erected in its place. Side chapels were also constructed, of which little remains. On the south side of the church were the cloisters with the domestic buildings of the monastery clustered around them; in the east walk, the chapter house, dormitory and slype; on the west, the prior's lodging; and on the north, the frater or refectory, butteries and kitchen. The most interesting details in the choir and ambulatory are Rahere's tomb, erected in the 15th century, and Prior Bolton's oriel window, inserted in the south triforium, 1506-1532. The tombs of Robert Chamberlayne, 1615, with two angels drawing back the curtain of a tent in which the ambassador is kneeling in armour, of Rycroft, who edited the polyglot Bible, of James Rivers, with his bust and of Sir W. Mildmay, Chancellor of the Exchequer to Queen Elizabeth, and founder of Emmanuel College, Cambridge, are worthy of notice. When the party visited the Lady Chapel, Mr. Webb directed attention to the care taken in retaining old stone in the restoration. He also pointed out

A WINDOW STILL BLOCKED UP,

which, if a house adjoining could be secured, would be opened. He remarked that they had spent £17,000 in securing properties around the church, and about £33,000 had been spent on the last restoration. It was expensive securing property in the City of London. There is a beautiful iron screen at the entrance to the Lady Chapel, which was a memorial to a lady who was interested in the church. When they returned to the body of the church, Mr. Webb spoke of Rahere's tomb, with figures of two little angels reading a psalm, and angels at the foot holding the arms of the monastery of St. Bartholomew. The canopy work was of considerably later date. During the restoration in 1866 some workmen in the dinner hour improperly opened the tomb from the back, and then, without the consent of anyone in authority, opened the coffin. The remains of Rahere were disclosed as represented in the effigy on the tomb. The coffin was sealed up, and had never since been disturbed. Although the action of these men was wholly unauthorised, it settled the question of the remains being in the tomb. Before leaving, a large assortment of photographs was examined, and several purchases made, these souvenirs being sold to assist the restoration fund. An inspection of the

EXTERIOR OF THE CHURCH

was made, and in what was the nave several houses have been built, though, as Mr. Webb remarked, there is no chance of the nave being restored, since there is really no demand for it. The stone upon which sixpences were placed for old women to pick up was an object of some curiosity to the archaeologists. The church is approached from Smithfield through a pointed arch of the Early English period, with dog-tooth ornaments and four gracefully

moulded orders. This doorway probably led into the monastic enclosure. The way through the gate, after crossing a footpath, leads into the churchyard, on the south side of which may be seen the bases of Early English pillars. These formed part of the nave which once covered the whole space of the present churchyard.—Mr. G. B. Witts returned the thanks of the Society to the Rev. Sir Borradaile Savory and Mr. Aston Webb, and said if anyone wanted to know how to restore an old church he could not do better than come to St. Bartholomew's.—A move was next made to the Charterhouse. The party entered the hospital from the north side of Charterhouse Square, by a lofty doorway with overhanging shelf, supported by two lions. Opposite on entering is a brick gateway, part of the old monastery, to which was affixed a dismembered limb of the last prior, Houghton, put to death by Henry VIII. at Tyburn. The inner court on the right contains the master's house and the dining hall, now used by the pensioners, but once the Gueston Hall of the monastery, and later the banqueting hall of the Dukes of Northumberland and Norfolk.

THE GREAT STAIRCASE,

the minstrel's gallery, the governor's room, the great fireplace, were probably all the work of Thomas, Duke of Norfolk, who in 1565 bought the Charterhouse, and in 1572 was executed for treason, as was his predecessor, the Duke of Northumberland. Through a door in the east wall of the master's court is a cloister containing monuments to Thackeray, Leech, Sir Henry Havelock, and other old Carthusians. Thence entrance is afforded to Brook Hall, in which Brook, master of the hospital during the Commonwealth, was confined by Cromwell. Another door leads to the chapel, of which the entrance is ancient, the rest is Jacobean. Here is a monument to Edward Law, Lord Ellenborough, by Chantrey. The brick cloister of the monks extends along one side of the boys' playground; on another side are the modern buildings of the Merchant Taylors' School, which in 1872 superseded the old Charterhouse School. It was a peculiarity of the Carthusian system that the monks lived in separate houses, each having a little garden of his own. To the right, passing from the first court into the two new quadrangles, is Washouse Court, a portion of the old monastery. In 1361 Sir Walter Manny laid the

FOUNDATIONS OF A MONASTERY

for Carthusian monks on a piece of ground just outside the City boundaries, which had been previously used as a burial place for the victims of the plague in 1348. The name Charterhouse is an English corruption of the French Chartreuse. The chapel was consecrated in 1371. The monastery consisted of a large square, now the school playground, around which were some twenty-five separate houses or cells for the monks, the chapter-house, chapel, laundry, prior's lodging, and frater. The buildings passed through various hands, and brought death and misery to more than one of their proprietors, till Mr. Thomas Sutton purchased them of the Earl of Suffolk in 1611, and founded his hospital for eighty men and forty boys. In 1872 the Charterhouse School was removed to its new quarters at Godalming, where it has increased threefold. The vacant premises were bought by the Company of Merchant Taylors for their school, formerly located in Suffolk Lane, and the new buildings now accommodate 500 boys.

THE St. Luke's Vestry is being urged to lay a noiseless paving on the south side of Finsbury Square.

AN inquiry is being held with reference to the application made by the Liverpool Corporation to the Local Government Board for sanction to borrow £100,000 for the museum extension and new technical school.

SIR FREDERIC LEIGHTON'S house is opened to all comers on the Wednesdays and Saturdays of the present month, from eleven until seven o'clock. No less than 500 pictures have recently been added to the collection, already rich, upon the walls.

MELLIFONT ABBEY:

ITS HISTORY AND ARCHITECTURAL REMAINS.*

By ANTHONY SCOTT, M.S.A.

(Cor. Mem. Central Society of Architects, Belgium).

It will be very generally agreed, not only by the members of the architectural profession and the numerous archaeological societies now established, that, in the famous Abbey of Mellifont, Ireland, once possessed a gem of Mediæval Architecture. Its striking and beautiful design, intricate and costly workmanship, rendered it an object of valued possession, not only to the famous order of Cistercian Monks, its builders, but to the people of the surrounding kingdoms of Ireland. To-day, all that remains of this renowned establishment are the well-known ruins of the Abbey Church, the Chapter House, and some few fragments of the Monastic buildings.

The history of the Abbey, its foundation, rise, and fall, are inseparably bound up with the records of its founders, the Cistercians. To tell of the story of its establishment, the magnificent ceremonies of its consecration, the deeds of its abbots and brethren, would last far beyond the limits of this short paper.

Let us casually glance at some short facts relating to its bright foundation, glorious history, and subsequent abandonment to destruction. In the earlier part of the twelfth century an Irish Archbishop, St. Malachi, in the course of a Continental journey, paid a visit to the newly-established Abbey of Clairvaux,

situated in the diocese of Langres, in a lonely part of Normandy. St. Malachi, we are told, much admiring the discipline and rules of the new community, left four of his travelling companions there, to be instructed in the duties and observances of the religious profession, that, as he said, "hereafter they may be able to teach us." On his return to his See, some young men were sent to Clairvaux to join the others, and in 1140 or 1141 the erection of the new monastery was commenced at Mellifont ("The Honey Fountain") by the brethren who had returned to Ireland.

Among those who were left at Clairvaux to be instructed was one Christian O'Conarchy, an archdeacon of the diocese of Down, and who afterwards became first Abbot of Mellifont. When he returned to Ireland after his probation, as it were, at Clairvaux, he was accompanied by one Brother Robert, a skilled architect of French nationality, who is said to have built the Abbey after the model of Clairvaux. The grant of the site of the Abbey, together with timber and stone for its erection, was made to the monks by Donagh O'Carroll, Prince of Oriel, lord of the territory on which was the site of the monastery. This prince also endowed the monastery with "many broad acres."

In 1157 the Abbey was consecrated with much splendour and display. At this ceremony, we read, grants of much gold, lands, and gifts for the altar were made to the Abbey by the princes, lords, and great landowners there assembled to witness the consecration. Among those present at the consecration ceremonies was Devorgilla, Queen of Breffny, destined in after years to be known as the Helen of Ireland. According to some ancient historians, an intrigue with Dermot, King of Leinster, was the means of the first invasion of the English, with its well-known results. Beyond the fact that in 1173 Devorgilla again

visited the Abbey of Mellifont, but this time in the capacity of a penitent, and is said to have died twenty years later, there is nothing to chronicle.

From the date of its consecration, for well nigh 400 years, Mellifont Abbey flourished in the seclusion of its quiet valley, sending out brethren (as the parent house grew too small) to found other houses. In this way were founded the numerous Cistercian Abbeys throughout Ireland, all of which were subject to the parent house at Mellifont, and were governed by its abbot.

So early as nine years after its own establishment Mellifont reckoned six important filiations or branch houses, namely, Bective, co. Meath; Newry, co. Down; Boyle, co. Roscommon; Athlone, Baltinglas, co. Wicklow; and Manisterray, co. Limerick. At the time of the English occupation twenty-five abbeys were in existence, spread over the whole of Ireland, each erected in a valley by the side of a running stream, and removed from the borders of great cities.

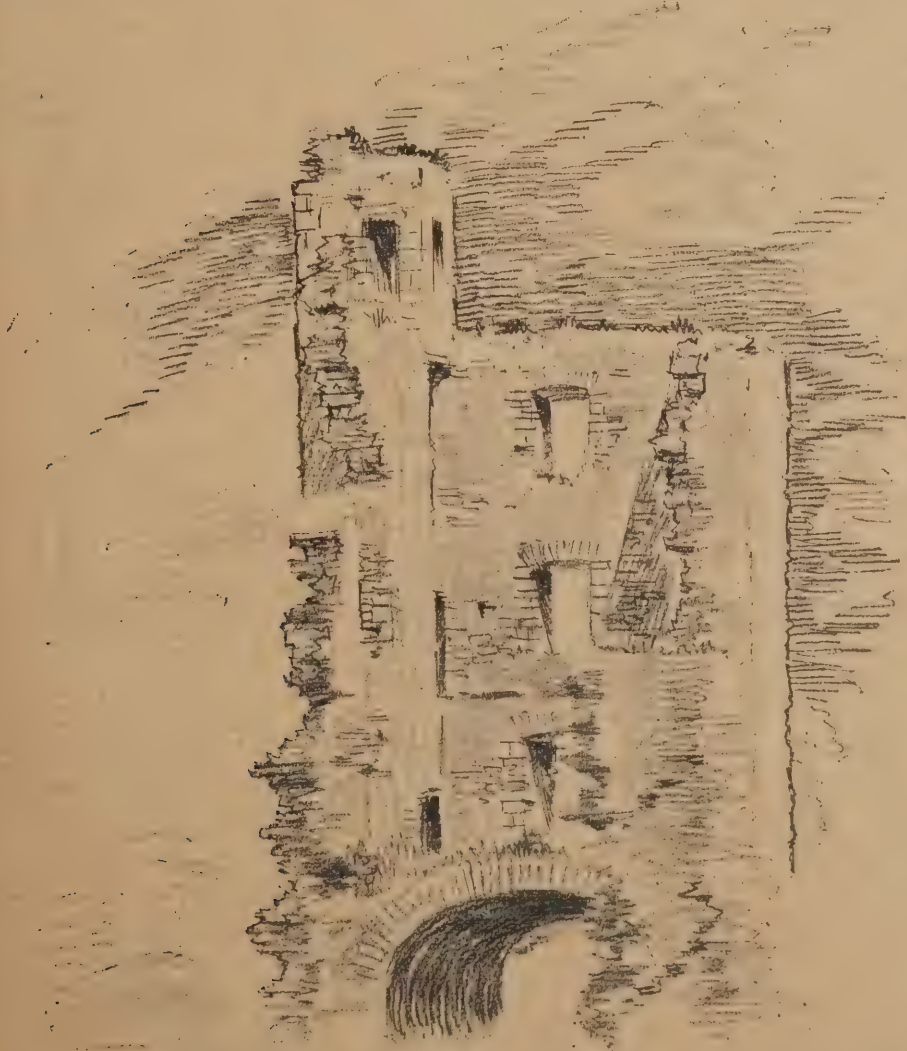
Passing over the 400 years which elapsed since its consecration, during which period no event bearing on the Architecture of the Abbey is chronicled, the next important date we find is the memorable year 1539. Just previous to this year Henry VIII. and his Parliament had passed the Acts for the suppression of monasteries.

It may here be mentioned that the suppression of the monasteries was repugnant to the inhabitants of the country, even to the Government officials of the large cities. A protest against the dissolution (but which was, unfortunately, without effect) was addressed to the King and his secretary. In it the writers drew attention to the fact that the Cistercian Monasteries were the only inns throughout the country. Those inns possessed the additional merit of being free of all expense to visitors. Another reason why the writers of this protest wished for the retainment of the abbeys was that they formed the only schools or seminaries available for the children of the nobility. As is well known, these Acts were at first directed only towards the lesser monasteries. These unfortunate establishments having been delivered to the Royal Commissioners, their valuable possessions realised so much that the larger monasteries were soon ordered to be suppressed, and their estates confiscated. In obedience, therefore, to the monarch's mandate, the Abbot and monks of Mellifont assembled in their Chapter House one bright day in July, 1539, and there, in the presence of the Commissioners, the unfortunate brethren delivered up their all. Having signed the fatal document, they were expelled from their house and church, and left to roam where they might.

Immediately after the surrender a sale by auction was commenced, when everything of value was disposed of to any bidder. The woodwork, stained glass, all the costly fittings and furniture, were there and then sold; if not sold, smashed into pieces; and, it is said, even the graves of the dead were not spared.

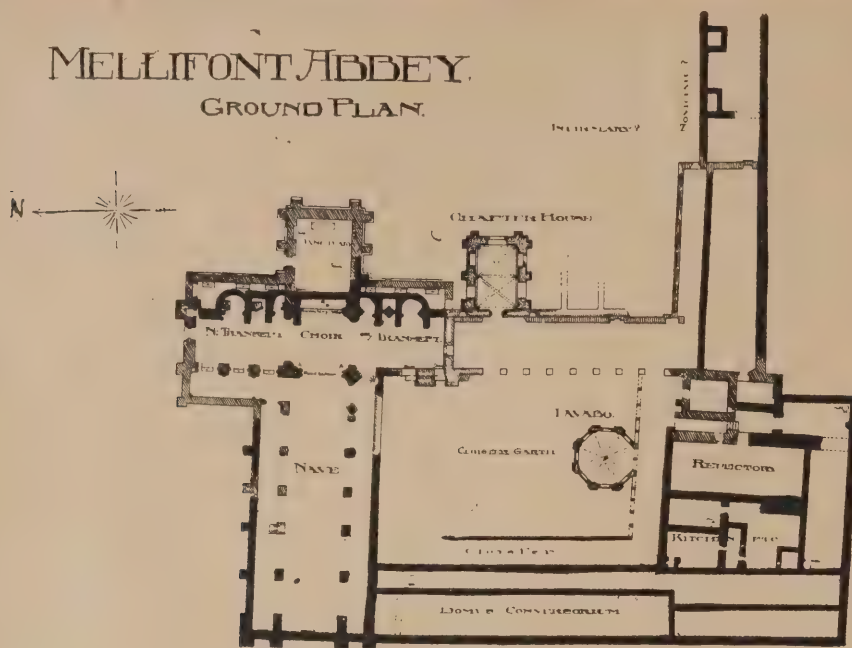
The records and muniments of the monastery were greedily seized upon as giving a correct account of all the property belonging to the Abbey, and the situation of its various and scattered possessions. Thus it is that so fragmentary particulars of the history of the Abbey have come down to us. It was only by purest accident or extraordinary means that any of the archives of these monasteries are yet extant. All were confiscated by the regal emissaries, and, of course, by them consigned to oblivion or flames when once their purpose had been served. Of the monks expelled, but fourteen, including the abbot, received pensions, all of small amounts. To the others nothing but a small monetary grant was allowed.

In 1541, the Abbey, with all its possessions and lands, its revenues, rights of patronage, &c., was given to one Laurence Townley. In 1556, they passed into the hands of Edward Moore. Under this owner the Abbey was converted into a residence, and strongly fortified to resist invasion by the Ulster Irish. This Edward Moore, knighted soon after his possession of the Abbey, was succeeded by his



MELLIFONT ABBEY. THE PORTER'S LODGE. FROM A CHARCOAL DRAWING BY ANTHONY SCOTT.

MELLIFONT ABBEY. GROUND PLAN.



son, Sir Garrett Moore, who also obtained the revenues, &c., of six other dissolved monasteries.

In 1641, Lord Charles Moore, the son of Sir Garrett, who had been raised to the peerage, became involved in the civil wars of that period, during which eventful time the Abbey was besieged, stormed, and sacked on more than one occasion.

At the close of the Civil War, Lord Moore's son, finding that his income, which had been reduced under the Government of the Commonwealth, was insufficient to support his various establishments, obtained—after petitioning the Government of the day—entire possession of Mellifont Abbey and 300 acres of land for his own support.

With the fifth Lord Moore, who had received also the title of Earl of Drogheda, this portion of Mellifont's history closes, for in 1727 the seat of the family was established at Monasterevan, in the county of Kildare, and Mellifont was abandoned for ever.

Soon the progress of decay became very evident; the roofs and walls fell, rubbish and debris accumulated, until nearly all was covered by the green turf growing on 5ft. to 9ft. of rubbish. About 100 years ago the mill we see at present was erected, to serve which the old avenue passing through the gateway at the porter's lodge was turned into a mill race, and the present road (formed on the accumulated heap of ruins) constructed to give access to the mill.

This seems to have been the lowest state of degradation to which the Abbey was destined. The mill continued working until about thirty years ago, when even it was left to ruin for years. Thus the Abbey of the "Honey Fountain," the great monastery, as the people of the surrounding country knew it, has remained for more than a century and a half given over to decay, each season as it passed doing its work of wreck and ruin silently, but yet as effectively as the siege and storm of battle. At last came a brighter day for Mellifont, for in 1884 the Abbey was vested as a national monument in the Board of Works, under the Acts of 1869.

In the course of the necessary repairs to the old structure then carried out, traces of walls and pillars were discovered. Further excavation led to the whole of the ruins as they now are seen being exposed to view. At this time the old offices belonging to the mill were removed. These works were carried out under the capable superintendence of Sir Thomas Deane, and effected a great change in the appearance of the site of the old Abbey. Where once only appeared an enormous rubbish heap, strewn over with scattered pieces of wrought stone, a greater part of the buildings may now be distinctly traced. The tops of the stump of the piers and walls were

covered with a waterproof concrete, and the fragments of the old wrought and carved stone, tiles, and brick, &c., collected and stored in the Chapter House, to be the admiration and wonder of the strolling visitor or the interested architect.

Leaving the history of the venerable ruins with all their melancholy associations, let us now turn to a somewhat closer examination of the existing remains.

We have noticed how that Brother Robert is said to have built the Abbey of Mellifont, after the model of Clairvaux; this we shall see to be true, only as far as relates to the disposition and arrangement of the various blocks of buildings, which are component parts of the whole Abbey. Local circumstances of course dictated the precise method of arrangements and of the details of the monastery.

By one of the earliest rules of the Order, the site for each new abbey was to be sought for in a sheltered valley close beside a running stream or river. The monks were to strictly avoid the choice of sites on elevated positions, and were also forbidden the erection of lofty towers.

If we examine the plan of the parent house of Clairvaux, a lonely, out of the way part of Normandy, and compare it with its offshoot, that of Mellifont, a sort of family likeness is at once evident. In both, the buildings are arranged round a quadrangle or inner court, with the church facing east, forming the north side. The eastern side comprised the Chapter House, Sacristy, Parlour, and other apartments, which may be described as the administrative block. The western block (which at Mellifont runs along the river bank), contained the Domus Conversori, the house of the Lay Brethren, and the square was completed and the quadrangle enclosed by the dwellings and dormitories of the fully professed monks. Round the walls of the inner court or quadrangle ran the cloister, which well-known feature was usually one of the more decorated portions of the monastery.

A high wall enclosed the monastic buildings and gardens, the space within often amounting to fifteen or sixteen acres. The avenue from the main quadrangular block of buildings led up to the porter's lodge, through which a spacious archway formed the means of ingress and egress to the monastery. The gate lodge was in charge of an experienced lay brother, who was, as it were, the connecting link between the monks and the outer world. The avenue or road from the porter's lodge to the monastery proper was lined on each side with buildings intended for the shelter of travellers, who sought the hospitality of the monks, for, as we have before remarked, to all who asked the inhabitants of Cistercian abbeys were (by one of their distinguishing rules and customs)

to give food, lodging, and rest to all wayfarers, of whatever condition or plight. Here the points of similarity between the two examples cease. In the details of the arrangements of each abbey we should find, as we have already discovered, that local circumstances dictated the precise minor arrangements.

We will, therefore, now proceed to examine what is left of our noted Abbey of Mellifont in fuller detail. But before we examine the Architecture of our ancient Abbey, let us first see what are the materials with which the monks erected their buildings. For general walling they used the green clay slate stone of the adjoining hills. The walls, of ordinary uncoursed rubble, are well built, but of no extraordinary thickness. In some parts of the walls are to be seen blocks of concrete, evidently composed of lime and a rather fine gravel. Whether these were built in by the original builders we cannot know.

The dressings and wrought stone work generally are of yellowish sandstone, evidently of a good weathering nature. There is no similar stone to this found in the near vicinity of Mellifont. The nearest deposits of such sandstone are to be found at Johnstown and Skryne, near Navan, co. Meath. These may have been the quarries from whence it was obtained. Some of the more intricate carvings are worked out of Caen stone, or some such similar stone, which has slightly decayed in parts, and in some places has been deliberately defaced or chipped.

With what materials the roofs of the buildings were covered we can hardly now ascertain. The laminated stone of the locality is capable of being split very finely, and may possibly have been used for slating the roofs, as we know that some of the abbeys and churches in like districts were similarly covered. The old records and chronicles, fragmentary though they be, tells us that the Cistercians were the first brickmakers in Ireland. That this statement is very true the existence of a thin, well shaped brick of a light red colour in some of the later buildings at Mellifont is ample proof.

Among the collected fragments in the Chapter House are to be seen some examples of ridge tiles, of red terra-cotta glazed on the outside. These tiles are heavy and of large size. In section they are of the ordinary crested pattern and are ornamented with tool marks. Moulded brickwork, slightly glazed, was also used by the monks, as we shall presently discover, but the article in which they appear to have most excelled were floor tiles. A large number of these are at present laid as a floor in the Chapter House. Each tile measures about 5in. by 5in., and is about $\frac{1}{4}$ in. thick. Some of the tiles have the pattern stamped on them or incised; others are encaustic, the principal colours being red and cream.

A few of these tiles still remain in their original position, thus indicating the original floor level. They are to be found in a corner of one of the piers at the crossing of the nave and the transepts of the church. From the level of these we may notice what vast accumulation of rubbish and debris once must have covered the abbey before the excavations of 1884. The apparent ground level then was above the tops of the stumps of the remaining piers and walls.

Let us now turn to the architectural treatment which the ruins display. Of the church and buildings first erected by the monks in 1142-1157, but little is remaining. A close examination of the ruins show the traces of the foundations of an early church intermingled with the walls and piers of the eastern end of the later church. The earlier church had in all probability a circular apsidal east end, with small chapels in a line with the apse. In this respect the early church corresponded with that of the church in the Abbey of Clairvaux. Shortly after the erection of the Mellifont Monastery, the monks at Clairvaux carried out extensive alterations to their church, and remodelled it to a great degree.

Acting in conformity to the superior house, the Mellifont monks probably altered their church to keep up with the amount of architectural knowledge then obtained. They,

however, built a square east end to their new sanctuary, in this respect departing from the customary Cistercian plan, recurring, however, to the earlier church, which was, as far as can be gathered, of a Norman character. It is doubtful if many of the fragments of the stonework stored in the Chapter House formed part of its architectural treatment. There was nothing about these caps of more than ordinary character. They were, in fact, but of a very usual type of Norman work.

We have said that but little is left of the monastery or church buildings first erected at Mellifont, and it is improbable that any of the remains of the monks' apartments date from that early period. These buildings, such as the refectory, calefactory, kitchens, and the novitiate, sectorium, and infirmary, which had over them the dormitories, are now represented only by their fragmentary traces. Except some few feet of foundations and two small vaulted apartments, no trace is left. While of the guests' chambers, stables, stores, which, tradition has it, once lined on both sides the avenue, from the large quadrangular block up to the porter's lodge, not a vestige is to be seen.

The porter's lodge, of which very considerable part remains, possesses a massive and dignified appearance, but has no very striking architectural features. The arched gateway is covered with a semicircular barrel vault of unhewn stones. The walls are very massive, are built of the common slaty stone of the surrounding hills, with squared quoins of sandstone. This lodge was in the charge of a lay brother, who could watch all entries to the Abbey. There were two stories over the gateway with rooms, it may be supposed, for the gatekeeper.

In the absence of well-defined periods of architectural style among the ruins, and the uncertainty of chronological sequence at Mellifont, we shall next examine some later Norman caps, some of which may be said to be of the Norman Transitional period. Where these examples originally stood cannot be said with any degree of certainty. The eastern walk of the cloister at Mellifont was probably the place where were used details of this style, but no information may be gathered from the site itself. In all these examples are large holes for dowels, which, in some cases, perforate the whole of the base stones.

Most of these capitals are in a remarkably good state of preservation. It is very easily to be seen that to violence alone is attributable the damaged condition of some of them. Here is a line graved upon the abacus of the cap for setting out the profile of the lobes; here is another, with fainter traces of the same lining.

Careful setting out and delicate workmanship are exhibited by all these examples, the leaves being in each case skilfully wrought and tenderly handled, and each example is rather more symmetrical than we generally find in works of this period.

The later church, which we have already seen was built upon the site of the earlier church, and occupies the same relative position here as at Clairvaux, and also at Villers, in Belgium, now claims our attention. Its plan, and such details as are left us, evince traces of some changes of style. Perhaps these changes were improvements or alterations to make the church still more beautiful and sumptuous as the monks advanced in architectural skill and knowledge.

Tradition does not relate the name of any of the architects under whom these changes were adopted and executed; neither has the name of the abbot, during whose tenure they were carried out, come down to us.

Here we have a cruciform church, with aisled naves and transepts, with a square-ended sanctuary. This square-ended sanctuary, which differs in this termination so strongly from the Continental examples of Cistercian churches, was probably inserted because of the prevalence of such square ends to English and Irish churches. At one period of its history no Irishman was permitted to enter Mellifont either as a lay brother or fully professed monk. This was probably the period during which the square termination was built to the church.

(To be continued.)

Bells and Carillons—Old and New.

THERE is an ancient Latin proverb which asserts somewhat decisively that the tastes of human kind are matters regarding which it is worse than idle to quarrel. And this will hold good with equal force of matters musical, for among the musical instruments which are pronouncedly loved or hated the bell without doubt takes a foremost place. One poet speaks with delight of "those evening bells," and another of the "bells of Shandon;" but how many men who are not poets, and who cannot rhapsodise, unless it be in bad language, have cursed those Sunday bells? But, quitting the poets, made and otherwise, it would appear that the love of bells is almost a national trait in the Englishman's character, for England has ever been known for

ITS LOVE OF BELLS.

even being in ancient days sometimes termed "the ringing island." And here it may be remarked that, although the bell may appear a somewhat simple musical apparatus, it was only by very slow degrees that it reached an approximate perfection, even if this stage can be said to have been attained. Bell founding is an art which requires very considerable skill, although the present day process varies very little from that pursued in ancient times; but with the process of founding we have no concern here, although we may mention that the most anxious moment for the founder is when the mould is *in situ*, and the bell metal has been found to be of the right temperature, and the furnace doors, wherein the molten metal is confined, are opened; when the workman, if he knows his Schiller, thinks of his glorious "Song of the Bell" thus:

Is the bell in the ground well bedded?
Is the mould well set and steadied?
Skill and diligence to pay,
Will it issue fair to-day?
Should the cast not hit,
Should the coping split!
Ah! perhaps, while hopes elate us,
Now, e'en now, mishaps await us.

As England has ever been famous for peal and change ringing, so Belgium, especially among Continental countries, has always been noted

for its carillons, which is to be found generally throughout the Netherlands and in Germany and other places. Speaking of the *carillon*, Dr. Engel tells us that "it is generally placed in the church tower, and also sometimes in other public edifices." The statement repeated by several writers that the first carillon was invented in the year 1481, in the town of Alost, is not to be trusted, for the town of Bruges claims to have possessed similar chimes in the year 1300. There are two kinds of carillons in use on the Continent, namely, the clock chimes, and those with a keyboard, manipulated by a musician. The carillon in the Parochial Church at Berlin, which is one of the finest in Germany, contains thirty-seven bells, covering rather more than three octaves, while the new one of our own Royal Exchange stands forth as one of the best in the world. Reverting to the metropolis of London, it may be mentioned that Dugdale tells that a "clochier," or bell tower, stood at the angle of the east end of the churchyard of old St. Paul's Cathedral, which contained "four very great bells, called 'Jesus Bells,' in regard they specially belonged to Jesus Chapel, situate at the east end of the undercroft (crypt) of Paul's." He also relates that these bells were in existence until the time of Henry VIII., when a certain Sir Miles Partridge, "having

WON THEM FROM THE KING

at one cast of the dice, pulled them down." Whether these were the only bells possessed by old St. Paul's Cathedral may be doubted. If a peal ever existed in the central tower of the church, it must have been destroyed by the fire which burnt the tower in 1444 or in 1561, and as no mention is made by Dugdale of bells being placed in the tower after the restoration of the edifice by Queen Elizabeth, it is probable the cathedral had none. The finest bells in London are those of St. Paul's Cathedral, which number twelve, and total in weight 271cwt. 3qr. 11lb., and those of St. Saviour's, Southwark, while the best carillon is, as before stated, that of the Royal Exchange. Other good peals of bells and chimes are to be found at St. Martin-in-the-Fields, St. Clement Danes, and Whitechapel.



MELLIFONT ABBEY: A CORNER IN THE CHAPTER HOUSE. FROM A CHARCOAL DRAWING BY ANTHONY SCOTT.

ACADEMY ARCHITECTURE.

BY A SPECIAL CORRESPONDENT.

(Continued from page 395.)

MR. BRYDON exhibits the Art Gallery and Library, Bath, designed in the refined classic for which he is so justly famous. Mr. Horace Field's well designed Georgian building, the General Offices of the North-Eastern Railway at York, is an imposing and picturesque block, and should make a fine addition to the modern Architecture of York, as well as to railway Architecture in general. It is indeed quite a treat to at last see something good in railway buildings. Mr. H. T. Hare shows, in a very effective drawing by Mr. Raffles Davison, the Public Library at Shoreditch, a building of later Renaissance character, with a great breadth of effect. A kind of tower over the entrance doorway has a pyramidal room with a circular turret, corbelled out, and finishing with an octagonal ogee roof, just clearing the main roof.

The domestic work this year is quite as good as on former occasions. Amongst the smaller

must ascribe to the love of quaint effect shown by Mr. Wood.

Messrs. Brewill and Baily show a new house at Edwalton, a Georgian design, the angles of the building being marked by Ionic pilasters. The entrance gable can hardly be said to be elegant, but with this exception the design is pleasing. Mr. Leonard Stokes, in Nos. 1720 and 1724, exhibits Shooters Hill House, Pangbourne, illustrated by vigorous pastel drawings by Mr. E. A. Rickards. This method of illustration is somewhat novel at the Academy, but it is an exceedingly effective one for buildings. The picture gallery of Shooters Hill shows a long, interesting looking room with a curved ceiling, top-lit, the fireplace recessed back has a small apartment over, which gives a very quaint and very effective appearance to the room.

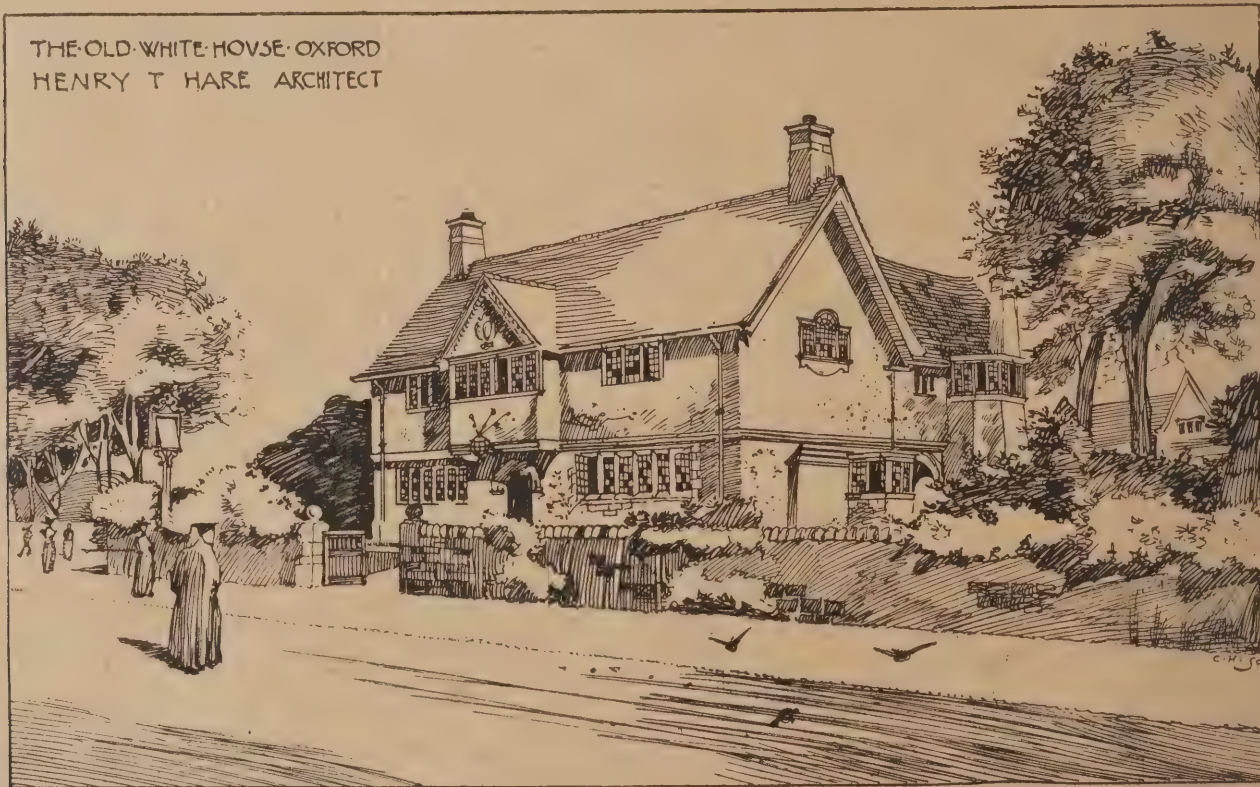
Messrs. Ernest George and Yeats have only two exhibits this year—The Library, North Myms (1608); the fireplace, Jacobean in detail, is surmounted by an enriched frieze, the bookshelves coming up to the fireplace on both sides; a pair of fire-dogs and fireback complete the design. The other exhibit, "Okewood, Sussex," for her Grace the Duchess of Santo Teodoro, is a brick building, consisting of a main block with two wings, which

rather French in feeling, the ceiling is formed of massive timber beams, the room is panelled throughout up to the height of the frieze. The views of the staircase show a rather original treatment in the use of a handrail, this being stepped. The decorations on the staircase are Adams in character.

Mr. C. F. A. Voysey has two exhibits, both houses in white plaster with green slate roofs, an effect which when introduced a few years since was a novelty, but we are not quite sure that the extreme plainness and disuse of all mouldings will not soon pall on the public; the use of rough-cast even now threatens to degenerate into a fashion.

Mr. Henry T. Hare exhibits "The Old White House, Oxford," a simple piece of domestic work charmingly drawn by Mr. Mallows, certainly one of the most successful drawings of the year. The upper part of the building is rough-cast; the lower part of stone; the centre front is broken by a projecting square bay with gable roof under which is the principal entrance to the inn.

Mr. Arnold B. Mitchell's "House at Milford on Sea" (1597) is a very effective brown ink drawing, and has a plan. The entrance porch which appears in the perspective leads into a spacious hall larger than those usually



A SKETCH AT THE ROYAL ACADEMY.

work there are no exhibits of more interest than those of Mr. Edgar Wood, of Manchester, who has no less than six exhibits. Nos. 1600 and 1765—houses and shop at Middleton, Lancashire—are apparently different views of the same building, a very quaint design, the corner shop with its circular bow window on the first floor, and two circular windows on the ground floor, making a particularly effective group. Mr. Edgar Wood in many of his buildings makes use of plaster work as a decorative means, and here uses it in upright bands, and in little panels round the bay window. Nos. 1675, 1876, also by Mr. Wood, show a country house, the upper part being of rough-cast, the lower brickwork, the roof is apparently of stone slates; the formal water-colour drawings admirably illustrate Mr. Wood's work, indeed, it is the drawing of all his work which so much helps to bring out the homely and unaffected picturesqueness. No. 1792, "The Friendship Inn," is a water-colour drawing, though to our mind, not quite equal to Mr. Wood's other work.

No. 1667 looks more like an old country inn than a newly erected one, but this we

enclose a forecourt. One wing is extended to form a terrace front. A picturesque feature is the entrance archway to the left of the forecourt, otherwise the design has no very striking features; but the fact of its being from the hands of Messrs. E. George and Yeats would insure an interesting result. The New Dames Houses, Wycombe Abbey School, by Mr. W. D. Caröe, can hardly be said to be amongst his best work. The multiplicity of windows tends to make the design look fidgetty and restless. The drawing by Mallows, in pencil, is pleasing. Mr. Caröe also exhibits "The Tower of Saint Michael's, Woolwich" (1706).

One of the most interesting domestic exhibits is Jardine Hall, an old Scottish house, to which Mr. E. J. May has made extensive additions, including an entire remodelling of the plan. The drawings show a general view of the exterior, the spacious entrance porch, the dining room, and the staircase, as well as one or two other portions of the house, which, as thus altered, forms one of the most successful examples of recent domestic Architecture. The dining room has a handsome stone fireplace, extending to the ceiling. It is

found in houses of this type, but this is certainly a good way of treating a moderately sized house. The dining and drawing rooms, library and billiard rooms, are all entered off the hall.

Mr. W. A. Pite shows a frame of three clever pencil drawings of Highcombe Edge, Hindhead (1730), all interior views.

Mr. T. Davison's cottage hospital, No. 1621, is a very successful little design, this class of building is always rendered difficult to design, owing to the many requirements, often amounting to fads, on the part of the doctors, but Mr. Davison seems to have been able to successfully surmount them in his design, and has succeeded in getting a picturesque building.

We are glad to note a new and original attempt at a modern house front in Mr. Cave's "40, James' Street, London" (1634). The pencil elevation is tinted to indicate a green brick front, with a white-painted projecting bay running up through three stories in the centre, with a cornice at the top, above which is a light-coloured stone gable very plainly treated; on either side of the upper

HOUSE AND SHOP :
MIDDLETON LANCs :
EDGAR WOOD ARCHT :



A SKETCH AT THE ROYAL ACADEMY.

part of the bay is a panel in bas-relief. Altogether this is a very pleasing exhibit, and the green brick treatment should be especially suitable for the London atmosphere.

Mr. H. Inigo Triggs exhibits a golf club house, a design in stone, with stone slate roof. The design consists of a single story block of buildings, in front of which is a verandah, whilst behind rises a low, square tower, with octagonal turret; a sculptured shield and a sundial occupy panels at the foot of the principal gable. The building is shown in a conventional drawing by the author.

Mr. Halsey Ricardo's house near Bramley is a long, low building with mullioned windows, and looks like a reproduction of a late Gothic country house.

The "House at Edgbaston, Birmingham," by Messrs. Bateman and Bateman, shows a building probably more antiquated than in reality, but it is nevertheless a very pretty piece of colour.

Mr. Inigo Thomas has two exhibits, both colour drawings rather dark in tone. "The New Playing Fields, Eton" (1641), is a bird's-eye view showing the fields laid out much after the style of Hampton Court, with long avenues between the fields. It will doubtless be many years before the scheme will attain the maturity shown in the drawing, but, should the idea be carried out, the Eton of a century hence will have much to be proud of. Mr. Thomas's other contribution is one in which great importance appears to have been attached to the border, which almost obscures the drawing.

Nos. 1664 and 1674 are two drawings of a cottage by Mr. L. F. Crane, identical in all respects except that one has a slate and the other a tile roof.

No. 1677, "The Court House, Broadway, Worcestershire," is a stone building designed on local lines, and will certainly be an acquisition to the delightful Worcestershire village. Mr. H. T. Buckland's "Roadside Inn at Bromford" is a quaint, straggling building, well illustrated by a watercolour drawing.

No. 1685, "The Rhodan School," by Mr. John W. Simpson, is one of the most interesting designs in the room. The buildings, which run round three sides of a square, are so arranged that the masters' houses are on the front portion of each return wing, whilst the schoolhouse is at the back of the quadrangle. The design is

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well illustrated by a broad and delicate drawing by Raffles Davison.

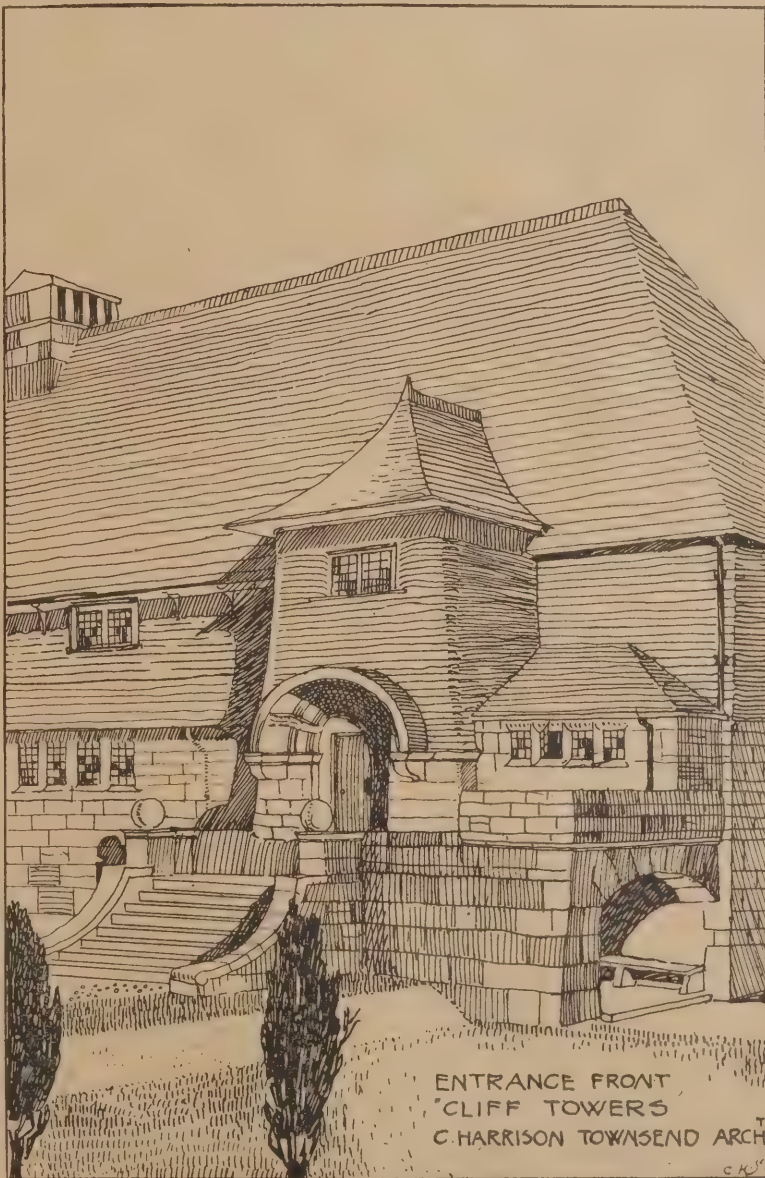
Mr. James A. Morris exhibits "The Garden and Proposed Addition to Red House, Ayr" (1692), illustrated by an effective pen drawing by Mr. MacGibbon, the design is essentially Scotch, and, we are inclined to think, a little too formal. The gardens, if carried out as shown, should be very effective.

No. 1708 shows two red brick villas, simple but well-proportioned, and a decided improvement on the usual types; they are by Messrs. Brewill and Bailey.

No. 1768, "A House at Pangbourne," we are afraid is rather spoilt by the drawing; there are two other drawings of this house: 1752, "The Entrance Hall;" 1753, "The Garden Front." In 1752 we have such a charming entrance hall that we may forget the exterior of the building in contemplation of the vaulted chamber with its strapwork ornament shown so broadly and sympathetically in the drawing by Mr. J. J. Joass.

We should have liked to have seen more than one exhibit from Mr. C. Harrison Townsend. "Cliff Towers," however, well sustains his reputation. It is a country house on the Devonshire coast, perhaps suggestive of American domestic Architecture. The basement is of heavy stonework, the ground floor of ashlar, the remainder of the building being green slate. The circular hood over the front door is a pleasing feature, the door itself is apparently covered with metal plates.

Yarmouth, Isle of Wight, should certainly be much the richer for the picturesque group of buildings Mr. Aston Webb has designed consisting of a small club facing the water-



ENTRANCE FRONT
"CLIFF TOWERS"
C. HARRISON TOWNSEND ARCHT

A SKETCH AT THE ROYAL ACADEMY.

and a row of shops at right angles to the club's principal front.

No. 1781, "Three Houses at Hampstead," by Mr. Horace Field, is a quiet Georgian design. With the exception of the entrances, almost entirely devoid of stone dressing, this is surely as it should be in a brick building.

Mr. M. H. Baillie Scott exhibits (1787) "A Proposed House at Bexley." This is a pleasing half-timber and rough-cast elevation, the timber being used sparingly.

There are not many churches exhibited this year. In No. 1601, "Design for New Church, Caerhŷn, Conway," Mr. H. L. North shows, in small coloured geometrical drawings, a country church, proposed to be built of local granite and Penmon stone.

No. 1635 is another Welsh church, attractively drawn. No. 1643 is a design for a church tower by Mr. J. Coates Carter, very French in appearance. Mr. A. H. Skipworth has two church designs. No. 1668 is a good bold design and drawing of a country church on a hill by Mr. Edwin F. Reynolds. No. 1686 is a very successful design for a country church on a hillside, shown in an excellent pen drawing, which, if we mistake not, is by Mr. Needham Wilson.

Mr. S. K. Greenslade exhibits a design for a town church, a small drawing, but exceedingly well done; the design itself is apparently on a large scale.

COLLEGE BUILDINGS IN LIVERPOOL.

THE new Pupil Teachers' College, Clarence Street, Liverpool, has been formally opened. The college has frontage to Clarence Street and Pleasant Street. The main elevations are executed in buff terra-cotta and pink brick of specially selected tints. The style of Architecture adopted may be described as a free treatment of English Renaissance, dominated largely by the requirements of modern education. Adjoining the college in Clarence Street is the principal's residence, now in course of erection. The class-room accommodation provided is for 569 students on the ground and first floors. This is exclusive of the science department, which, with the art class-room, occupies the whole of the top or second floor. The lowest floor is a half basement.

ONE STAIRCASE

is provided for the female pupil teachers, connecting the whole of the four floors, and another staircase from Green Lane; a side street is provided for the male pupil teachers, also connecting the four floors, and giving access to their lavatories and cloak-rooms. The class-rooms accommodate from thirty-five to sixty students each, and two pairs of accommodating rooms of fifty each can be thrown together by sliding glass partitions. The science department, which occupies the top or second floor, as already stated, contains a chemical laboratory, giving accommodation for forty-eight students, with storage and preparation rooms, balance room, and science teachers' room in connection therewith. There is also a lecture and examination room, divisible by a roller screen.

THE ART CLASS-ROOM

is 37ft. by 23ft. An office for the principal commands the entrance from Pleasant Street. Special attention has been paid to lighting, heating, and ventilation. The artificial lighting is by electric incandescent lamps, suspended in clusters of three. The rooms are heated by hot-water pipes, and the corridors by means of radiators on the low-pressure system. Open fireplaces are also provided. A natural system of ventilation has been adopted, fresh air being admitted at the meeting rails of the windows, with other forms of inlet where required. Extraction is obtained by means of large air flues and roof extractors. The buildings have been designed and erected under the supervision of Messrs. T. Mellard Reade and Son, architects, 2, South John Street, Liverpool, and the work has been carried out by the late Mr. Samuel Webster, Bootle. The contract price for the building was £14,327.

NEW THEATRE AT PLYMOUTH.

THE imposing structure in Union Street, Plymouth, known as the New Palace Theatre, is rapidly approaching completion. Together with the adjoining Great Western Hotel, the block has 125ft. of frontage and is 140ft. feet in depth. The theatre has been in course of construction about thirteen months, and 220 men are now employed in putting the finishing touches to what will be one of the largest and best-appointed music-halls in this part of the country. It has been erected from the designs of Mr. W. H. Arber (Wimperis and Arber), 25, Sackville Street, Piccadilly, W., and will contain seating accommodation for over 2000 persons. The commanding front has been executed in plain and glazed terra-cotta by Doulton and Co., Lambeth, a special and most interesting feature being the reproduction on tiles of the two celebrated pictures of the Spanish Armada, in its glory and in its defeat, by Sir Oswald Brierly. These pictures are in

TWO LARGE SEMI-CIRCULAR PANELS,

one at either end of the main façade. From the principal front entrance in Union Street a wide Sicilian marble staircase leads to the spacious balcony and foyers, and the stalls may be approached from the same entrance by a subway. The building has been designed on the most modern principles. The foyer on the first floor of the balcony level is to be very handsomely finished, and the boxes and balcony stalls will be upholstered in velvet. The balcony and gallery fronts, and also the fronts of the boxes, are artistically carved in fibrous plaster work of special designs. There will be two tiers of seats and a spacious promenade. The decoration of the interior is thoroughly English in character, and the panels in the large central dome, the friezes, and the balcony fronts are rendered attractive by a series of paintings of naval and military triumphs and incidents of local as well as national interest. The pictures in four large

PANELS OF THE DOME.

represent the destruction of the "invincible" Armada, the battle of Trafalgar, Admiral Blake's victory over Van Tromp, and Lord Howe's brilliant naval success; and those in the four smaller panels comprise the Great Harry, the first English warship, built by Henry VIII.; the Victory, Nelson's flagship, as she appeared when under his command; the Santa Maria, in which Christopher Columbus discovered America; and, by way of effective comparison, H.M.S. Majestic, one of the latest types of battleships. Over the proscenium arch is an exceedingly good picture of Sir Francis Drake being knighted by Queen Elizabeth, together with portraits of other famous personages of that period, including Howard, Essex, Raleigh, Frobisher, Seymour, Shakespeare, Sidney, Spencer, Bacon, Marlowe, Leicester, Amy Robsart, and Mary, Queen of Scots. On the ceiling over the proscenium arch is a picture of the battle off Cape St. Vincent, and paintings representative of the goddesses of peace and war. Each side of the proscenium contains scroll panels bearing the names of prominent Elizabethan heroes with an Elizabethan ship at either end. There is also round the balcony and gallery tiers a series of heads of renowned naval and military men, ancient and modern. Prepared for the entrance hall is a picture of the meeting between Wellington and Blucher after Waterloo, and another of the battle of Cressy, together with a series of small panels containing representations of the vessels in which William the Conqueror came over to England. The whole of these decorations have been executed

FROM OLD PICTURES AND SKETCHES

of the period, and were painted on canvas in London studios by Mr. W. H. C. Brewer, of London. In the erection of the theatre the safety of the public has been specially studied. The stage is fitted with one of Merryweather and Co.'s fireproof curtains, and a number of hydrants are fixed in the most suitable spots around the building. There are ample means

of entrance and exit at all parts of the building, including 5ft. staircases leading to and from the gallery, in addition to similar staircases to the balcony. The specially-arranged ventilation is most complete. Over the central dome is a huge ventilator, and there are also ventilating shafts carried out from the ground floor level in the spandrels of the auditorium; whilst provision has been made for the entire removal, during the intervals in the performance, of a large glass roof in the gallery, thereby securing an open space about 16ft. by 10ft. There is ample lavatory accommodation, and the refreshment bars are conveniently placed. The theatre will be illuminated by the electric light. The Great Western Hotel is being rebuilt so as to form one façade with the theatre.

KEYSTONES.

A SCHEME has been adopted for the erection of a new Presbyterian church hall in Leeds.

The foundation stone has been laid of the new Presbyterian Church at Harehill Avenue, Leeds.

Three stained glass windows, erected in the Parish Church of Beaconsfield, have been unveiled.

The Church of St. James the Great, Bethnal Green Road, E., is now being restored. It had been allowed to fall into decay.

A NEW Masonic Hall in Carrickfergus was dedicated a few days ago. Mr. S. P. Close is the architect, and Mr. Ezekiel Caters the builder.

The necessity for enlarging the wholesale fruit and vegetable market, at Smithfield, is being considered by the Markets and Fairs Committee.

The foundation-stone of a Roman Catholic Church at Brockley has been laid. The new building will cost rather more than £3000, and will have seating accommodation for 600 persons.

The Leamington Town Council has resolved to at once proceed with the erection of a building for the joint accommodation of the technical school and free library, at a cost of £12,000, exclusive of land and furnishing. The design is to be thrown open to competition.

PLANS have been approved for the new Old Bailey, and in the near future we may look to have our criminals dealt with in a more convenient place than the present building, which is totally unworthy of the important part which law-breakers take in the life of the City.

THE handsome premises of the Church Training College for Lay Workers, in Commercial Road, Stepney, established and maintained by the Society for Promoting Christian Knowledge, were opened last week. The site of the new building cost £5000, while the structure itself cost £10,000.

A MEMORIAL to Edmund Burke has been placed in the parish church of St. Mary and All Saints, Beaconsfield, Bucks. The place given it is about the centre of the wall in the north aisle. In design it is a handsome tablet. The head, carved in Derby alabaster, is copied from the portrait by Sir Joshua Reynolds, painted in 1775, now in the National Portrait Gallery.

THE West of England Eye Infirmary Governors met at Exeter to consider a recommendation of the Building Committee. The amount of donations and promises to the Building Fund now amount to about £6600, and the committee, seeing the urgent need for extra accommodation, consider that the first section of the new works, which it is estimated will cost £13,000, should be commenced in August.

THE London and North Western Bill for the construction of the proposed tunnel under Shap Fells passed unopposed through Committee of the House of Commons on Monday week. The length of new line authorised between Tebay and Shap runs altogether to between nine and ten miles. A noteworthy point in the particulars is that the Company takes power to abandon the old line over the fells, which now connects Tebay with Shap. This does not imply that any existing station will be disused or any new station created.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

July 20th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slat; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

An interesting discovery is reported from Ruabon, where excavations are proceeding in the old Bryn Fields. The workmen in cutting a deep trench unearthed a kind of cistern, consisting of two upright stones, surmounted with a cross-stone, which inclosed a large sepulchral urn of terra-cotta, containing cremated remains. The urn is bowl-shaped, tapering gracefully to a narrow base, and is ornamented over the greater part of the surface. It is believed to be 2000 years old.

The proprietors of the Savoy Hotel have recently purchased the property on either side of the present entrance in the Strand. As soon as building operations commence, it is intended to enlarge the accommodation of the hotel itself by an imposing erection, which, serving as an annexe to the original structure, will possess a frontage upon a spacious quadrangle, which will be introduced when the ground is cleared. The removal of the houses before the Cecil and the Savoy Hotels will give an imposing and widening aspect to the thoroughfare.

In St. Augustine's Church, Brooklyn, New York, the tabernacle of the high altar is protected by probably the most novel safe ever devised. This is undoubtedly the first time in which practical science has been used as an adjunct in religious service, says the Scientific American. Of course, it was very essential that the beautiful altar itself should not be marred in any way by the safe, and that it should be operated in a dignified and fitting manner. Unfortunately, in many churches, the richly jewelled receptacle for the sacrament has proved too often a bait for burglars, and many priests have tried to devise some scheme by which the security and sanctity of the tabernacle would be assured.

In the church referred to the receptacle for the sacrament cost 10,000dol. The safe weighs 1600lb., and consists of four pieces: the base, a curving piece of steel at the back that is stationary, and two circular curving doors which come together, closing the front towards the church. The leaves of these doors are made of Harveyised steel an inch thick. They meet as they close under the dome and overlap each other tightly. They turn on roller bearings, and they are operated by means of an electric motor. The safe is easily opened by manipulating buttons beside the tabernacle, but these push buttons will have no effect until the motor itself is set in motion in the vault below, the combination lock of the steel vault being known only to the priests of the parish. Electrical protection is also provided which would give notice at once to the nearest police-station should the safe be tampered with. Masked in its covering of gold leaf, this steel shell is a superb piece of mechanism.

THE Cork Echo is entirely dissatisfied with the character of the houses in the suburbs of the Irish city, and it trusts that when the electric tram opens up new building ground around Cork the builders will adopt some better plan for the erection of suburban villas, "as nothing could be poorer or meaner than the sort of dwelling-house now commonly raised in terraces round the city. Architecturally, these houses have no points of good style at all, not even simple prettiness, which is so easy to achieve. In and around Welsh and English cities, beautiful little houses are easily obtainable in terraces. Take, for instance, Cardiff. Some of the prettiest and most compact dwelling-houses one could wish to see are found in the suburbs of Cardiff. Though here in Cork we have not the advantages of Welsh brick and various sorts of fine native stone, still we should be able to improve upon our present system of running up houses which are nothing better than eyesores. The houses built in the neighbourhood of Cardiff are immeasurably superior to those around Cork, a fact worth noting at the present time."

AMONG the structural alterations which have recently taken place at St. Anne's Church, Edgehill, Liverpool, a most important need has been fulfilled in the matter of increased light in the sanctuary. By piercing the panelled vault overhead, sufficient illumination is now obtained to reveal much that was hitherto hidden of the beauty of Pugin's wonderful oak baldacchino. For the first time this exquisite piece of ecclesiastical wood carving may be seen in its entirety. The baldacchino—a canopy surrounding the altar—is a frequent feature in Italy, but perhaps in this country that at St. Anne's is the only example. It was designed by Welby Pugin, but it was at the instance of Peter Paul Pugin, his son, who found the design amongst his father's papers, that it was erected in its present position.

The structure is in the form of a groined canopy supported on four piers. The roof rises to a pinnacle 32ft. above the floor of the chancel. On the front piers are carved almost life-sized figures of St. Michael and St. Gabriel, and above them aspires an intricate mass of delicate carving, designed in Pugin's peculiar and beautiful adaptation of the Perpendicular Gothic. In spite of the enormous bulk of the upper portion, its minute tracery and elaborate piercing give it an ethereal lightness; and it is this, the most notable portion of the erection, that has erstwhile been lost in the gloom of a dimly-lit sanctuary. A fair conception of the amount of carving bestowed upon it by Messrs. Norbury and Paterson, of St. Luke's Studios, Myrtle Street, may be gathered from the fact that in all there are something like 5000 carved crockets and 300 to 400 columns in the structure. The Church of St. Anne is one of the best of Hanson's efforts. Planned like a cathedral, complete with north and south transepts, and a triforium over the choir, and kept within the severe limits of the Early English style, it is a church of somewhat distinctive character. But a wholly inadequate clerestory has made the nave too dark. The latter fault is now being remedied by an ingenious system of fenestration in the nave vault.

A PROPOSAL to reopen the old Norman west door of the church, which has been closed for upwards of fifty years, and to carry out certain other improvements connected therewith, is being considered at Halsewell. It has been discovered that the original ground level of the western door is something over 2ft. below the level of the present surface. The church used formerly to be entered through a very fine Norman doorway, and it was now proposed to reinstate that old doorway to its original proportions, and to make certain other alterations in the western part, which would show up the whole elevation as originally intended by the architect.

THE late Mr. Alfred Cock, Q.C., had a very wide reputation as a connoisseur of objects of Art, and his collection had long been the

admiration of his many friends. But the collection has been considerably over-rated, for there were very few objects of the first order of rarity or interest in the entire assemblage of over 500 lots which Messrs. Christie, Manson, and Woods have just concluded selling by auction. The total amount realised was slightly over £3000.

MRS. C. R. ROBERTS' art collection (late of Oakdale, Long Island, New York) included a suite of Louis XVI. carved and gilt furniture, the seats and backs covered with old Beauvais tapestry, and comprising a pair of sofas and six fauteuils, 3100 guineas; a Louis XVI. carved and gilt firescreen, with a panel of old Beauvais tapestry, 180 guineas. Various other properties included a sixfold screen of old Beauvais tapestry, each panel 60in. by 42in., 520 guineas; a pair of Louis XV. cassollettes and covers of gros-bleu Sevres porcelain, 18in. high, 440 guineas; two pairs of Louis XIV. upright black Boulle cabinets, formerly in the collection of the late Mr. Gladstone, £90 19s., and bought by Messrs. Radly, Robson, and Mackay, of Old Bond Street; a secretaire of the early Louis XV. period, 48in. high, 180 guineas; a Louis XV. marqueterie commode, 57in. wide, 220 guineas; a grand panel of old Brussels tapestry, representing the destruction of Niobe's children, 220 guineas; and a set of three panels of old Flemish tapestry, with Venus and other figures, 220 guineas.

For the purposes of the Building Act the district of Fulham (hitherto comprising the whole of the parish of Fulham), has been divided by the Council into two districts, viz., North Fulham, comprising that part of the parish lying to the north of the Fulham Road and High Street, Fulham, down to Putney Bridge; and South Fulham, comprising that part of the parish lying south of the above roads. At a recent meeting of the County Council, Mr. Stanley F. Monier-Williams, A.R.I.B.A., F.S.I., was appointed district surveyor for South Fulham, and Mr. Frederick W. Hamilton, A.R.I.B.A., district surveyor for North Fulham.

WITH the demolition of Mazas Prison, in Paris, the first prison in France constructed on the cellular system has disappeared. During the present century almost every French politician of note has been made familiar with its interior, for it was a great place for political offenders. It was named after General Mazas, who was killed at Austerlitz, and originally his name was over the principal entrance; but this was afterwards removed, as it was pointed out that it was a singular method of honouring a hero to call a prison after him. The boulevard itself in which it stands, and which is even better known as the terminus of the Lyons and Mediterranean Railway, was re-named a few years ago the Boulevard Diderot. The prison was of circular shape, and the cells, which radiated in long rows from the centre like the spokes of a wheel, numbered no fewer than twelve hundred. These cells were ingeniously constituted to enable each prisoner to see the chapel from his door, so that he could listen to divine service without going outside his place of solitary confinement.

MR. F. T. NORRIS writes from the Viking Club:—"Referring to the ancient camp at Uphall, between Barking and Ilford, of which several persons have written pleading for a Roman origin, I beg to point out that in an article written by myself, and communicated to the Gentleman's Magazine in October, 1888, I have advanced considerations for regarding it as a Danish fort. An important piece of evidence is that Barking was originally called Beddenham, and only after the (East) Monastery was burnt by Guthram and his Danes in 871 was it called Barking, a Danish place-name connoting ang or field of the borg or fort which they had built. Barking or Beddenham Monastery, of which one of the gates and possibly part of the church still remain, is remarkable for being the Monasterium on the east side of London which gave rise to the

title of West Monasterium for that of Westminster. The foundation of both (*circa* 670) is due to the same East Saxon Kings, as the unique extant charter, &c., show. I may add that both the Essex Naturalists' Field Club and the Essex Archaeological Society have collected bibliographies anent these earth-works."

THE destruction recently of another so-called "fireproof" business structure in New York City affords an additional illustration of the practical impossibility, under the present conditions, of checking a fire when it attacks the upper floors of a modern American "sky-scraper." Since business buildings in the United States have towered to a height of over six stories, the difficulty of providing adequate fire protection has become almost insuperable. Chief Bonner, of the New York City Fire Department, than whom there is probably no higher authority in these matters, does not scruple to declare that none of the modern "sky-scrappers" are fireproof, and that once a fire gets a good start in one of the upper stories nothing can be done but to let it burn. He holds, says *Cassier's Magazine*, that it is utterly impossible to fight a fire above a distance of 125ft. The only remedy that is suggested is the adoption of interior fire plants and the organisation of a fire corps of employes to operate them in case of an outbreak. A number of the high modern buildings in New York are already supplied with interior standpipes and the necessary equipments, but the majority of the owners of such structures are content to depend upon the so-called fireproof construction of the walls and floors, a protection which time and again has proved fallacious in actual experience. The insurance companies are actively working in this matter, however, and it is not unlikely that pressure will be placed on the building department of New York to compel owners of buildings over six stories high, in that city, to provide their own fire-fighting apparatus. It is not merely a question of danger to the building itself and its occupants, but also to the lower buildings adjoining, and to those across the street, when the street is narrow, as is so often the case in the crowded parts of a city. This was proved in the case of a recent fire, when two buildings on either side of a high structure were burnt out, and those opposite were damaged, and saved only with difficulty from sharing a similar fate.

FOR some time past a special committee of the Battersea Vestry has had under consideration the powers of that body with reference to the erection of municipal dwellings and other matters connected with the housing of the working classes. The committee have submitted a report to the vestry, in which they find that the vestry has no power to erect dwellings under the Housing of the Working Classes Act, 1890, except upon the clearance of small insanitary areas, the authority for the erection of working class dwellings otherwise than in the case of insanitary areas (under Part III. of the Act) being the London County Council. The committee are of opinion that the metropolitan vestries and district boards should have the power of erecting dwellings for the working classes, and they recommend that the London County Council be asked to insert a clause in their General Powers Bill empowering such authorities to erect such dwellings under Part III. of the Act, and that the several metropolitan vestries and district boards be asked to make a similar representation to the Council.

AT Dennington, in Suffolk, there is still preserved in the parish church an ancient sand-writing table. It consists of a flat top, surrounded by a wooden spline to keep the sand from falling off. Two wooden floats, having a strong resemblance to a plasterer's trowel, are used instead of indiarubber for obliterating the writing. This table was used at the beginning of this century for teaching children to write, the first finger or a piece of pointed wood being used to mark the sand. The sexton of the church was taught the art of writing in this very rudimentary manner. So ancient is this

method of writing that Euclid used it, working out his problems on the sand, and the Tamils of Ceylon used to let the nail of one finger grow until it assumed the shape of the quill, for the purpose of inscribing palm leaves. Thus, writing with the finger, which belonged to one of the oldest Buddhist sects, has continued almost until the present day.

THEY are very busy just now at the National Gallery. Rooms I., II., and III.—the large room facing you as you mount the stairs, with its annexes right and left—are in the hands of the decorators. The colour of the wall paper, if it has not yet been definitely chosen, should be carefully considered. Perhaps in the larger gallery we may yet see that pale bronze green adopted which is so cool and so grateful to the eye in the only room in which it has been tried, the gallery devoted to Raphael and the Umbrian masters.

THE scheme of the Glasgow Corporation for decorating the exterior of the new Art Galleries with sculpture is proceeding in the most satisfactory way, and tends greatly to the credit of the rulers of that energetic city. The last incident in the matter is that not only the sculptors, but the carvers who are to carry out the carved ornament, have been sent to Paris at the expense of the Corporation to examine all the old and modern work there. They were met there by the architect, Mr. Simpson, and Mr. Frampton, the sculptor appointed by the city, and spent some days visiting the most notable buildings. The competition has been enlarged, and instead of £1600, £2800 is to be spent on the eight figures of Science, Literature, Religion, Commerce, Music, Architecture, Painting, and Sculpture, which are to form prominent external features on the pavilion.

THE Royal Commission for the Paris Exhibition of 1900 has just issued a pamphlet giving the Committees and general classification of the Exhibition and the regulations for exhibitors, and also a map of the Exhibition grounds and buildings. From this it would appear that the large building where the pictures will be exhibited will be to the west side of the new Boulevard. It will reach from the Avenue des Champs Elysées, over the new bridge, to the centre of the Invalides. The Pavilion of the English Commission will be on the further side of the Seine, on the Quai d'Orsay, whilst the building in which the exhibits of the British Colonies and India are to be shown will be in the Trocadéro Gardens, near the site of the Japanese garden in the last Exhibition. The Committees, as at present constituted, seem to be singularly insufficient, presumably they will be considerably added to. Of the Committee which has to do with Works of Art, of the fourteen members a considerable number appear to be either mere figureheads or South Kensington officials, the only efficient members being the President of the Royal Academy, the President of the Institute of British Architects, the President of the Institute of Painters in Water Colours, Mr. Armstead, R.A. (presumably representing sculpture), Mr. J. S. Forbes, who is a connoisseur in foreign but not in English Art, and Sir William Agnew. It will certainly have to be considerably increased to be in any way representative or useful.

THE Committee of the House of Lords which has been sitting for some time past upon the projected Copyright Bill has, during the past few days, been enquiring into the artistic side of the Bill, and examining, among others, Mr. Briton Riviere, R.A., and Mr. Wells, R.A. From the length of time that has been spent over it, the Bill will probably suffer the fate of its predecessors, says the *St. James's Gazette*. It therefore seems a thousand pities that the various divisions of Copyright Law cannot be legislated one by one, for, to deal with artistic, literary, musical, and dramatic copyright in the same Bill is too much for any single session. Artistic copyright certainly deserves attention before anything else, for the blots upon the present law are many, and of much moment, whilst the remedy is

admitted on all sides, and might be dealt with very cursorily. At present the only question which appears to divide the Committee and the promoters of the Bill is that of who should have the copyright in a portrait. It appears to us that the contention of the artist that this should belong to him, even where the portrait is a commission, or to the photographer because he supplies the plate, is altogether untenable. The question of the duration of copyright is also one about which there should be no difficulty. At present it is altogether inequitable that the copyright in a work completed fifty years before the artist's death, and one which leaves his easel just before that event, should be of the same duration. On the other hand, to extend the copyright for thirty years after death, which might mean in certain cases 100 years, seems to us to be far too liberal a term in the interests of the public.

THE West Riding County Council has again had under consideration a proposed site for the new county lunatic asylum. As the cost of the buildings alone will probably be something like half a million, considerable importance attaches to the whole question. The Asylums Committee recommend the purchase of an estate at Kirkburton, near Huddersfield, which they consider to be the fittest available site for the purpose.

AFTER mature consideration the executive committee entrusted with the Robert Louis Stevenson memorial have now come to a definite decision regarding the form which it is to take. A fund of about £1400 has up to the present been raised, and it has been decided that the principal memorial is to be a mural monument, with a medallion portrait in high relief and architectural framework, to be placed in St. Giles's Cathedral, Edinburgh. The board of the cathedral are prepared to allot the Moray aisle as a poets' corner, and a very suitable site for the monument may be found in that part of the ancient building. The executive have secured for the execution of the memorial the services of Mr. St. Gaudens, the eminent American sculptor, who has produced pleasing sculptures of the great writer from life. If the amount of the subscriptions are sufficiently increased, the executive will also seek permission to place a handsome red granite seat upon Calton Hill, overlooking the Firth of Forth.

THE Bill to confirm a Provisional Order of the Local Government Board, relating to Leeds, Wakefield, and Manchester, last week came before a Select Committee of the House of Lords, presided over by the Earl of Ribblesdale.—Mr. Pember, Q.C., for the Corporation of Leeds, explained that one of the objects of their Order was to enable a clearance to be made of one of the lowest portions of Leeds, locally known as "The Shambles," the buildings on which consisted mostly of slaughter-houses. The intention was to make a new street from Briggate to Vicar Lane. To enable the Corporation to do this the Leeds Estates Company had offered to give them a large piece of land, to remove the existing buildings, and to bear the cost of the improvement, on condition that the Corporation undertook to construct the street as far as Briggate, and to maintain it. The only petitioners against the Bill were a body of charitable trustees in Leeds, who had some property in the immediate neighbourhood which they were willing to give to the Corporation, if the latter would alter the line of deviation so as to improve their frontages. This proposal and that of the Leeds Estates Company were considered by a committee of the Corporation, and the offer of the Leeds Estates Company was accepted as being the best. The recommendation of the committee was approved subsequently by the Corporation. Nobody would be injured by the proposed improvement, because nobody but the users of the slaughter-houses would be displaced, and they would be otherwise provided for. The new street would be an enormous relief to the traffic of Kirkgate.—After a short consultation the Committee passed the preamble.

The New Government Offices.

SELECTION OF TWO ARCHITECTS.

MR. AKERS-DOUGLAS has at length decided into whose hands to place the plans for the new public buildings which will presently, it is to be hoped, adorn Westminster. His method of selection disregards all the doleful precedents. He has had no competition such as gave us the Law Courts. He has preferred to judge upon past achievement rather than upon rival prospective plans. He invited the Royal Institute of British Architects to suggest some names to him, and to submit some drawings of their accomplished work. A dozen or so of architects sent in photographs and sketches on the suggestion of the Council of the Institute, and these having been examined in the Office of Works, the result has just been made known.

THE LARGER BUILDING

will face the widened Parliament Street, or King Street, on the East, and Great George Street on the South. It will house a whole family of departments. The Board of Trade is to have a home there, and the Local Government Board and the Education Department and some other Ministers are to be placed there. The task of providing them with walls and a roof has been entrusted to Mr. John Morton Brydon, F.R.I.B.A. He is a Scotsman, but for many years has worked in London. He will be remembered as the architect of the Women's Hospital in the Euston Road. He is responsible for some of the chief features of the Scottish Church in Chelsea. He built the town hall for Chelsea—not the frontage, but the hall itself, with its Adamesque suggestion. To him also, Chelsea is indebted for its free library. More lately he has been employed in the extension of the Municipal Buildings at Bath. He was a pioneer in his younger days of what was then called the Queen Anne school, which found London built of stucco, and left it a city of red bricks; though we believe he rather repudiates the old designation, exclaiming, "Queen Anne stood only for honest work." He is certain to produce something solid and substantial, without trickery of ornamentation, and probably with an old-world suggestion.

THE SECOND SITE

to be filled lies between Whitehall Buildings and Whitehall. It used to be known as the Carrington House site, and is almost immediately opposite the Horse Guards. Here the War Office has to be lodged. Its tabernacle is to be set up by Mr. William Young—an excellent choice. Mr. Young has done work of all kinds, both public and domestic; he, for instance, built Lord Wemyss his Scottish seat. But he is known all over the world as the author of the Municipal Buildings in Glasgow, whereof the people of the City of St. Mungo are so proud. The elevation of that fine building is striking and picturesque enough; but the interior planning is probably unsurpassed in any public building in Europe, not excepting the Palais de Justice at Brussels. Like Mr. Brydon, Mr. Young hails from the North of the Tweed, but settled early in London, and has lived and worked here ever since. It is not safe to speculate upon the style he will employ, as he is catholic in his tastes; but he is almost certain to adopt some form of the classic.

The architects for the Cardiff new municipal buildings recently waited upon the local authorities, and, replying to questions, said that they would be willing to submit the names of several firms who could act as quantity surveyors, and from such list the corporation could make a selection; they thought 1½ per cent. would be adequate remuneration for the quantity surveyors. The architects further said that it would be an easy matter to heighten the front of the building somewhat, and also to alter the dome, if desired. In their opinion, Portland stone would be the best for the external portions of the building. It was resolved that the quantity surveyors be paid 1½ per cent., and that the external portion of the building be of the best Portland stone.

HOW TO BUILD "FIREPROOF."*

By FRANCIS C. MOORE.

THE British Fire Prevention Committee has just issued its tenth publication—a paper on "How to Build 'Fireproof,'" by Francis C. Moore, President of the Continental Insurance Co., New York, delegate of New York Board of Fire-Underwriters to the Board of Examiners of the New York Building Department. The paper gives a summary of various suggestions as to methods of erecting "fireproof" buildings. This summary has been prepared in America, and the whole of the questions dealt with have particular reference to the constructional practice of the United States. This fact, however, in no way lessens the value of the paper for the Metropolis and the other great centres of the empire; for, with slight modifications, it applies equally to the buildings of all countries. The author opens with a number of propositions, which, although axiomatic in some instances, are based on sound principles, and are worthy of all acceptance. By arrangement with the Fire Prevention Committee, we are enabled to give these propositions:

"SLOW BURNING."

First. It may be claimed that no construction is "fireproof," and that even iron and masonry could with propriety be designated as "slow burning." The iron or steel used in a modern building has, in its time, been smelted in a furnace which presented no greater capacity for running metal into pigs than some of our modern buildings, whose interior openings from cellar to roof correspond to the chimney of a furnace, and the front door to its tuyere. If a pyrometer could be adjusted during the progress of a fire it would be found to rise quite as high as in any forge.

OPENINGS IN FAÇADES.

Second. Glass windows will not prevent the entrance of flame or heat from a fire in an exposed building. It may seem strange that so obvious a proposition should be thought worth stating, and yet to-day more than 75 per cent. of the "fireproof" structures of the country have window openings to the extent of from 30 per cent. to 70 per cent. of the superficial area of each enclosing wall without "fireproof" shutters. Heat from a building across a wide street finds ready entrance through windows, and the several "fireproof" floors serve only to hold ignitable merchandise in the most favourable form of distribution for ignition and combustion, like a great gridiron, to the full force of a neighbouring fire.

OPENINGS IN FLOORS.

Third. Openings through floors for stairways or elevators, gas, water, steam pipes, and electric wires, from floor to floor of "fireproof" buildings tend to the spread of flame like so many flues and should be fire-stopped at each story. This fault is more generally overlooked than any other. Ducts for piping, wiring, etc., should never be of wood. In the Mills Building, in New York, a fire, not long since, jumped through two or three floors from the one on which it originated, by means of the passageways for piping, electric wiring, etc., comparatively small ducts, but sufficient for the spread of flame. In one instance the fire skipped one floor, where it was cut off, and ignited the second floor above.

"FIREPROOFING" IRON MEMBERS.

Fourth. In view of the fact that it is necessary to cover iron with non-combustible, non-conducting material to prevent its exposure to fire and consequent expansion, and in view of the fact that all ironwork, except cast-iron, will rust to the point of danger, it is best to use cast-iron for all vertical supports, columns, pillars, &c. It is not advisable, of course, to have floor beams of cast-iron (except in the form of Hodgkinson beams thoroughly tested). If a floor beam should give way, however, it might not necessarily wreck the building, whereas if a vital column should give way a

collapse of the entire structure might result. . . . In my opinion, cast-iron columns are superior to steel and more reliable. It is not generally known that American cast-iron is vastly superior to English cast-iron, and will stand a greater strain without breaking. Cast-iron, moreover, will not expand under heat to the same extent as wrought-iron and steel, which is another fact in its favour.

COLUMNS SHOULD BE STRIPPED.

No bearing column should be placed in such a position that it cannot be uncovered and exposed for examination without danger to the structure. One of the ablest architects in New York makes it a rule to so "fireproof" his columns that they can be examined at any time by removing the "fireproofing" to determine whether rust has invaded their capacity to carry their loads. In my judgment, periodical examinations should be made, from time to time, in this way, of all wrought-iron or steel columns, as it may happen that a leaky steam or water pipe has worked serious harm. Such a discovery was accidentally made recently in an important New York building. . . .

EXPANSION OF IRON.

It is generally supposed, and frequently stated, that there is a great difference between the expansion of iron and masonry by heat. This is not the case. For example, the length of a bar which at 32 degs. is represented by 1, at 212 degs. would be represented as follows:—

Cast-Iron	...	...	1'0011
Wrought-Iron	...	...	1'0012
Cement	...	...	1'0014
Granite	...	...	1'0007
Marble	...	...	1'0011
Sandstone	...	...	1'0017
Brick	...	...	1'0005½
Fire-brick	...	...	1'0005

In the "fireproof" building of the Western Union Telegraph Company, in New York, some years ago, a heavy brick pier, 7ft. or 8ft. in diameter, adjoined the wall of the boiler furnaces. The difference in expansion in the brickwork next to this furnace wall as compared with that of the remaining brickwork of the pier was so great as to produce a crushing of the material from top to bottom of the pier for a depth of several inches, and it was found necessary to change the furnace wall and leave an air space between it and the pier.

RELATIVE EXPANSION OF IRON AND MASONRY.

While the difference in expansion between masonry and iron incorporated with it is less per running foot than is generally supposed, and while the difference in expansion between a cubic foot of iron and that of a cubic foot of masonry would hardly be noticeable, especially if the iron were covered on all four sides, yet in stretches of 50ft. or more, as in the case of iron I-beams and girders, the cumulative effect of expansion in uncovered iron might be a serious matter—quite sufficient with the rises of temperature due to a burning building to push out the bearing walls and wreck the building. Especially is this true of temperatures higher than 500 degs. It is unnecessary to suggest that metal differs from masonry in the important respect that heat does not travel throughout the entire length of the latter, while it does in the case of metal. In other words, while the difference between the expansion of a lineal foot of iron as compared with a lineal foot of masonry, marble, brick, &c., is very slight, the difference in conductivity is very great. The conducting power of silver, for example, being represented by 1, copper would be .845, cast-iron .359, gold .981, marble .024, and brick .01—an important fact to be considered in the construction of buildings. Brickwork raised to a white heat would not raise the temperature of other masonry in the same wall a few feet away; but one end of an iron I-beam could not be raised to a white heat without raising the temperature of the beam for its entire length. It is a well-known fact that iron responds so readily to temperature that, in surveying land, a surveyor's 100ft. iron chain will, in measuring the distance of a mile, result in a variation of 5ft. between winter

* "How to Build 'Fireproof.'" By Francis C. Moore. The British Fire Prevention Committee, 1, Waterloo Place, London. 1s.]

temperature and summer temperature, resulting in an error of one acre in every 533.

PREVENTIONS AGAINST EXPANSION.

Where iron beams and girders are inserted in walls without sufficient space left for their expansion under heat, they are almost certain to overthrow the bearing walls by their expansion thrust. A large warehouse in Vienna, in which such provision had been contemplated by the architect, was totally destroyed, with its contents, by reason of the fact that an officious subordinate, discovering the space in the wall purposely left at the end of each beam, deliberately poured liquid cement therein, which, having set, effectually thwarted the well-meant intention of the architect, and resulted in the destruction of the building.

EXPANSION THRUST.

The expansion thrust of iron beams may be computed upon the following factor of expansion: Rolled iron of a length of 1562ft. will expand one-eighth of an inch for every degree of temperature. The heat of a burning building, as already stated, is enormous—sufficient to fuse most known materials. It may safely be estimated to be at least 1000 degs.; therefore, a length of rolled iron of 1562ft., at 1000 degs. of temperature, would expand about 125in., and a 50ft. length of iron girder would expand between 4in. and 5in., showing that there should be a play at each end of at least 2in. if the iron is not fireproofed. Inasmuch as in iron construction the iron beams and girders are usually anchored to the walls to steady them, space should be left, and the tie to the anchor should be by a movable hinge joint, which would be of the same strength, with an inflexible anchor for all tying purposes; but would yield under the thrust pressure like an elbow, and allow play of the beam; or stiff anchors should have elongated holes to allow expansion when beams are of great length. Girders are seldom over 25ft. long, but if bolted together, as is frequently the case, they may be 120ft. or more long, and a line of columns from cellar to roof of a building may easily have one continuous iron structure of two hundred or more feet. It should be remembered, however, that this danger from the expansion of iron may be almost wholly counteracted by protecting it from exposure to fire through the use of non-conducting material. It is more important to protect girders than beams.

ROOF.

Fifth. The roof, that portion of a building which ought to be most carefully watched during construction, is often the most neglected, woodwork entering into the composition, as in the case of the Horne Building at Pittsburg, where the cornice was supported on wooden outriggers.

PARTITIONS.

Sixth. Partitions. These should not be erected upon wooden sills, as is sometimes the case—only, however, with ignorant and inexperienced architects, who suppose that it is necessary to use wood in order to nail baseboards and other trim at the bottom of the partition. Porous terra-cotta will hold nails, and should be used in preference to wood, which, as soon as it burns out, will let down the entire partition.

[The seventh proposition deals with the provision of water standpipes, and the eighth with the necessity of a night watchman.]

STONE STAIRCASE TREADS.

Ninth. Marble, slate, and other stones are certain to disintegrate or crumble when subjected to the joint action of heat and water. For this reason 90 per cent. of the staircases in modern "fireproof" buildings would be found utterly unreliable in the event of fire, either for the escape of the inmates or the use of firemen—a serious consideration. Stone treads are usually let into iron rabbet frames, and as these stone treads would give way in case of fire, it would be impossible for a person to find a footing on the stairways; 2in. oak treads might actually last longer; but a safer staircase would be one the framework of which is of iron, the tread having an iron web or gridiron pattern, the interstices or openings of which should be small enough to prevent

the passage of a foot, underlying the stone or slate, so that if the stone tread should disintegrate, the staircase would still remain passable. It is possible to have the supporting tread of open-work cast-iron in an ornamental pattern, which, in relief against the white marble tread resting on it, would present a tasteful appearance from the underside or soffit of the staircase, with this great advantage, that, in the event the action of fire and water should pulverise the marble or slate tread, it would still afford a safe support for the foot. In the case of the burning of the two "fireproof" buildings, Temple Court and the Manhattan Savings Bank, in New York, the slate treads yielded early in the fire, leaving staircases with openings the full size of the tread, which, within a few minutes after the fire started, were impassable for either firemen or inmates. It is astounding that this vital fault should be so generally overlooked in "fireproof" buildings.

HEIGHT OF BUILDINGS.

Tenth. No building should exceed in height the width of the street on which it is located, from the view of light and health; nor, in any case, in excess of 95ft. for mercantile occupancy, nor a height in excess of 200ft. for office occupancy.

DESTRUCTIBILITY OF CONTENTS.

[The eleventh proposition shows how "combustible material will sometimes be more effectually and thoroughly destroyed in a 'fireproof' building than in an ordinary building, since the early collapse of the latter may smother the fire and effect salvage, whereas 'fireproof' floors will support the contents of the former, and distribute them so that they are more certain to be destroyed."]

ENCLOSING WALLS.

Twelfth. These should be of brick, the brickwork of the lower stories especially, if not of all, being laid in cement mortar. In fact, the specifications for a building in the compact part of the mercantile section of a city ought to be drawn in contemplation of the possible cremation of its contents, and the generation of heat considerably greater than 2000 degs. Fahr. The heat of a wood fire is from 800 to 1140 degs.; charcoal, about 2200 degs.; coal, about 2400 deg. Cast-iron will melt at between 1900 and 2800 degs.; wrought-iron, 3000 to 3500 degs.; steel, 2400 to 2600 degs.; and if an architect should be required to draw specifications for a building adjoining others, with the knowledge beforehand that its entire contents, from cellar to roof, were to be totally consumed, and he were under a bond to pay damages to surrounding property, he would not be more severe in his exactions than should a building law protecting neighbourhood rights in the enjoyment of property; for a mercantile or manufacturing building sometimes generates a greater heat in combustion than a smelting furnace.

In the course of excavations now being carried on in the Via Venti Settembre, at Genoa, a tomb of great antiquity has been found. In form the tomb resembles those of Corneto—the so-called well tombs—but its contents make it appear of rather more recent date. The cavity is about 80 centimetres in diameter by 60 centimetres deep. It is closed by a huge slab of cut stone, some 20 centimetres thick. Inside a large vase of the form known as crater vases was found, though unfortunately broken into several pieces. It seems to have served as a funeral urn, and was about 60 centimetres in height, and magnificently decorated. Numbers of pearls of great value are set on the edge of the vase, and around the sides are drawn in red on black many figures of priests and warriors. The date assigned to the vase is the third century B.C. In the same tomb a bronze water vase was found, extremely elegant in shape, and apparently of Greek origin. It is thought probable that before the excavations are finished other tombs of a similar nature will be discovered, as some years back a group of tombs of the Roman epoch was brought to light at Genoa, not far from the spot where the present discovery has been made.

MAKING A TUNNEL.

CONCERNING THE NEW SUBTERRANEAN RAILWAY.

DEEP down in the London clay, during the greater portion of the last two years, hundreds of brawny giants have been busy hollowing out, between the Bank and Shepherd's Bush, two great twin tunnels. Now the work is nearing completion. Connections have been made in nearly all cases. Temporary lines of railway have been laid down, and beneath the feet of the heedless, hurrying crowds that throng Oxford Street, and Holborn, and Newgate Street, perky, puffy little engines are engaged at this present moment in hauling trains of huge iron skips, each filled to overflowing with the blue-black, unctuous sub-soil. It has been a "dhivil of a job," says the Daily Mail, in quoting the words of an Hibernian foreman of works. The hardest kind of labour, pursued under apparently the hardest kind of conditions! Yet the men do not seem to mind, but

HEW AND DELVE AND PICK

away as merrily as though they had the blue sky above them, instead of thousands of cubic yards of earth and clay, that one would imagine might at any moment crash in upon them and overwhelm them. But the engineers laugh when you suggest any such eventuality, and when you come to examine the works more closely you see why. The fact of the matter is that the Central London Railway tunnels are not tunnels at all in the ordinary acceptance of the term. They are gigantic steel pipes, each 11ft. 6in. in diameter, that have been carried down the shafts in sections and fitted and bolted together underground. There is thus no more danger of a "cave in" than there would be in the case of a main outfall sewer. Nothing more strikingly illustrates the immense strides that within the past couple of decades have been made in engineering science than the driving of this same underground railway, the biggest and most important work of its kind, be it remembered, ever undertaken in England. Under

THE OLD CUT-AND-COVER METHOD

of tunnel construction it would have been impossible. Many people will doubtless recall the frightful dislocation of traffic, to say nothing concerning the loss to the shopkeepers along the line of route, caused by the building of the extension of the underground railway beneath the Mile End Road in 1884. In this case the now obsolete cut-and-cover principle was adopted. The whole of the roadway was converted into a gigantic trench, and for a considerable length of time traffic was entirely suspended. Fancy, Cheapside, Newgate Street, Holborn, Oxford Street, and the Bayswater Road being so served for a period of more than twenty-four months! Instead, the only notification afforded to the inhabitants of the Metropolis of anything unusual going on has been the presence along the line of route followed by the new railway of certain monster hoardings, behind which may be caught occasional glimpses of donkey engines, cranes, horses and carts, and huge stacks of tunnel sections. Each of these labour colonies marks the mouth of a shaft, and will eventually be

THE SITE OF A REGULAR STATION.

The shafts vary in depth. The one opposite the Bank of England, for instance, terminates at 60ft. below the level of the street; that at Oxford Circus has been carried down another 20ft.; while at Notting Hill a depth of 92ft. from the surface has been reached. The modus operandi is, however, in all cases the same. First there is dug out, by manual labour, a big round hole, the exact size of the proposed shaft. This is sunk further and further down into the bowels of the earth with each succeeding day; care being taken to line the hole thus excavated with steel sections, of a similar nature to those afterwards used in constructing the tunnel itself. Then, when the required depth has been reached, the vertical excavation is converted into a horizontal one, running east and west at right angles to the shaft. At first the clay is

removed by spade and mattock and pick. But as soon as a few cubic yards have been dug out and hauled to the surface, a strange-looking cylinder of steel is lowered down and fixed in position. This is the Greathead Shield, without whose aid such work as this would be, to all intents and purposes, impossible of accomplishment. In rear of this remarkable labour-saving engine are placed a number of hydraulic jacks, and slowly, but with irresistible force, it is "persuaded" to move forward. In the meantime, the men have still been busily delving ahead into what is now the tunnel, but instead of excavating its full diameter, they merely remove a sort of central core, as it were, of from 4ft. to 5ft. in thickness. Then along comes

THE CIRCULAR STEEL SHIELD,

with its knife-like edge, scooping out the remainder of the clay, and causing it to fall inwards in massive flakes. These are promptly broken up, shovelled into the skips, and dragged off to the mouth of the shaft, whence they are hauled to the surface and carted away. The shield, it should be noted, is just a trifle larger than the finished tunnel, thus enabling the steel sections to be built up and bolted together before it is again moved forward. By this means all risk of a "cave-in" is absolutely obviated. Afterwards, as soon as the shield is again pressed forward, the space formerly occupied by it, between the outer side of the tunnel and the clay, is filled with "grouting." Grouting is a mixture of cement and lime, which dries very speedily, and is, when dry, exceedingly hard. It is forced, by means of compressed air, through holes purposely left in the sheathing, and, as soon as it sets, that particular segment is considered to be completed. The "jacket" of grouting serves, in fact, the double purpose of guarding against any risk of subsidence, such as might conceivably affect the stability of the buildings above, and entail endless litigation and possible heavy damages, and of "clothing" the pipe-tunnel in

AN IMPERVIOUS TUBE OF CEMENT,

thus keeping it from contact with the water that is constantly filtering down from above. The bulk of the actual work of excavation has now been done, and, unless some unforeseen difficulties intervene, it is unlikely that the opening of the new line will be deferred beyond next January at the latest. There will be thirteen stations in all, and the entire journey is $6\frac{1}{2}$ miles. The new line is carried in two iron-bound tunnels which have, as far as possible, been excavated under the public thoroughfares; and at one point only—near Stamford Street, Blackfriars—has it been necessary to make any arrangement with the owners of private property. Hence the railway has been constructed at very small cost as compared with the estimated expenditure involved by other schemes which have from time to time been submitted to the consideration of the London and South-Western Company. An independent company was created to carry out the project, capital being raised in the first instance to the amount of £540,000. Under the Act of Parliament which authorized the

CONSTRUCTION OF THE LINE,

power was obtained to provide two stations only—one at Waterloo and the other at Bucklersbury, quite close to the Mansion House. The platform of the Waterloo terminus, laid at a depth of 41ft. immediately underneath the principal main lines of the London and South-Western Railway, is approached by a series of inclined ways which can be entered from various points of that company's station. After a somewhat sharp curve into York Road, the underground tunnels, rapidly descending, cross Waterloo Bridge Road, and follow the route of Stamford Street as far as Hatfield Street, where they turn in a north-easterly direction. Penetrating the bed of the Thames on a slight incline—arranged for the purposes of effective drainage—they emerge on the Middlesex side of the river, in front of the Royal Hotel, and passing the foundations of the Times office, proceed under the centre of Queen Victoria Street to the City Terminal Station,

which will eventually have an entrance to the public subway now in course of construction under the busy crossing in front of the Mansion House, the Royal Exchange, and the Bank of England. Passengers by the Central London Railway will use the same subway, but in the first instance the approach to the City station of the Waterloo and City Railway will be by means of two staircases rising to the street level near the premises of the National Safe Deposit Company in Queen Victoria Street. Although no provision of the kind has been made in the contract, it may eventually be found necessary to construct lifts at the City terminus, if not also at Waterloo. The railway works have been carried out by Messrs. Mowlem and Co., the engineers at the outset being Mr. W. R. Galbraith, M.I.C.E., and Mr. J. H. Greathead, M.I.C.E., and Mr. Harley H. Dalrymple-Hay, A.M.I.C.E., acting as resident engineer. Mr. Greathead died before the completion of the contract, and his place has since been taken by Professor A. H. W. Kennedy. Much of the tunnelling was executed

IN COMPRESSED AIR LOCKS,

owing to the fact that the deep excavation had to be continued through a strata of water-bearing gravel. This process was especially necessary at Blackfriars, where the line passes below the main sewer of the London County Council, carried under the Victoria Embankment. The tunnels were set with remarkable accuracy, and where compressed air had not to be employed the ordinary rate of progress was about 10ft. per day of completed work. At Waterloo a peculiar difficulty presented itself. There was not room enough to make a cross-over road without occupying considerable space underneath the station of the South-Western Company, and in order that this area might be utilised to the best advantage it was necessary to remove one of the massive brick piers on which the superstructure rests. The task was successfully accomplished by the construction of a single span arch of 40ft., and there is now ample room at each terminus for the rapid and regular working of a five-minute service of trains.

A new building has been opened at the rear of Garfield House, 8, Fitzroy Square, in connection with the home for working girls. Hitherto there had been accommodation for fifty girls, and the new extension will permit an additional forty-seven to make their abode at the home. The additional accommodation has involved an unlooked-for extension of the lavatory, baths, and sanitary arrangements, as well as the provision of an enlarged dining-hall.

The fifty-fifth annual congress of the British Archaeological Association is now being held at Peterborough. Peterborough and its immediate neighbourhood is particularly rich in archaeology, and excursions have been arranged to Caistor for its famous Norman church, Barnack for its fine Saxon church, Stamford and Burghley House, the historic seat of the Marquis of Exeter; Spalding, Little Gidding, and Yoxley churches; Northborough, the home of the Claypole family, and intimately associated with Cromwell; Fotheringay Castle (the scene of Mary Queen of Scots' tragic death); Apeltorpe Hall (the seat of the Earl of Westmorland), &c. Lord Melville will read a paper on Latham Hospital, at Oundle; Dr. W. de Gray Birch on the history of Ramsey Abbey (now the seat of Lord de Ramsey); Dr. Walker, of Peterborough, will describe the Saxon and Roman occupations of Peterborough; Miss Edith Bradley is to dilate upon Crowland, and the legend of St. Guthlac; whilst other matters connected with the fens and local history are to be discussed. The members of the Congress assembled at the Cathedral in the afternoon of the first day, and Dr. Ingram delivered an address on its history, with particular reference to the restoration of the west front, now in progress, and the recent discoveries of the remains of a Saxon church under a portion of the eastern chapel, now under repair. The Bishop of Peterborough afterwards delivered his inaugural address, and the Rev. Canon Sigers read a paper on Barnack Church.

L.C.C.

THE NEW STREET SCHEME.

THE proposal of the Improvements Committee of the London Council for the formation of a new thoroughfare between Holborn and the Strand—an account of which has already been published in these columns was discussed at some length at a recent meeting of the Council.—Mr. Campbell introduced the subject by moving to refer back the paragraph in the Finance Committee's report which set forth the cost of the improvement, £774,200. He said he was appalled at the magnitude of the scheme. It was proposed

TO BUY UP THREE THEATRES

and no end of other buildings, and it would lead to an annual charge in the first instance of £70,000 or £80,000. He wished to have the report referred back, in order that the Finance Committee might devise some means for paying interest out of capital whilst the improvement was being carried out.—Colonel Ford seconded.—Lord Welby said the committee had carefully considered their proposals, and it would be a mistake to refer the report back.—Upon a show of hands the amendment was rejected by a large majority, and the report received.—After further discussion the report was adopted.—Mr. Shaw-Lefevre then moved the reception of the main report of the Improvements Committee dealing with no fewer than six schemes; the street from Holborn to the Strand, Cat and Mutton Bridge, Old Gravel Lane Bridge, High Street, Kensington, Wandsworth Road, and Southampton Row. He pointed out that all these improvements involved an expenditure of £1,100,000. The main improvement, however, was the

HOLBORN TO STRAND THOROUGHFARE,

which involved an expenditure of £774,000. The scheme had been universally welcomed by the public. It was essentially necessary that the Council should understand that any delay in carrying out the improvement would involve the Council in a vastly increased expenditure. It was essentially the same scheme as that formulated by Mr. Frederick Harrison some years ago, with the exception that the Strand end of the street terminated in a crescent. By this plan the traffic going east and west would be better divided than if a direct route to Holborn were made. This was the first time it had been undertaken to re-house all the people who would be displaced by the scheme, and it would cost the Council a considerable extra sum of money. From whatever point of view the scheme was regarded as a street improvement, as a great sanitary improvement, involving the improvement of the whole district, or as an architectural improvement, it would add to the

DIGNITY AND BEAUTY OF LONDON.

—The report was received.—Upon the first recommendation, as follows, "That the Council do apply to Parliament in the Session of 1899 for powers to construct a new street, and branch streets, 100ft. wide, from Holborn to the Strand, and to carry out the subsidiary street improvements in general accordance with the scheme shown on the plan approved by the Improvements Committee on May 25th, 1898," Dr. Cooper moved, and Mr. Glanville seconded, an amendment that the Council should take no steps until after the Royal Commission on Local Taxation had issued its report.—Mr. Beachcroft having spoken in favour of the recommendation, Mr. Cornwall thought that any further delay would only put more money into the pockets of the ground landlords.—Mr. Henry Clarke advocated the adoption of the scheme, which, if carried out, would give London one of the handsomest streets in Europe.—Upon a division, after further discussion, the amendment was rejected by 93 to 20 votes.—Another amendment, moved by Colonel Ford, was lost by a large majority, as was one moved by Mr. Bond, M.P., in favour of moving the Church of St. Mary-le-Strand, and the Committee's recommendation was then agreed to with one dissentient.—The following recommendations

were adopted without discussion: That the question of powers being sought to enable the Council to lay tramways along the new streets be referred to the Highways Committee for consideration and report. That provision be made for the construction of a subway under the new streets (for mains, wires, &c.), and also for the planting of trees in the new thoroughfares. That provision be made in the Bill for part of the cost of the improvement to be dealt with on the same general principle as that embodied in the improvement charge sections of the London County Council (Tower Bridge Southern Approach) Act, 1895, but that a longer period than three years be allowed within which to judge of the effect of the improvement upon the surrounding property. That provision be made by scheme for re-housing within about a mile of their residences all the persons of the labouring class displaced who are dependent on fixed employment in the neighbourhood, and that adequate provision be made elsewhere for the remainder of the persons displaced.—This exhausted the recommendations of the Committee, whose scheme has thus been adopted in its entirety.

R.I.B.A.

THE JUNE EXAMINATIONS: LIST OF SUCCESSES.

THE following have passed the June Examinations of the Royal Institute of British Architects:—

PRELIMINARY.

P. P. Abercrombie, C. J. H. Ascroft, S. B. Ashworth, H. W. Asman, A. H. Atkinson, F. Barclay, H. M. Barker, M. S. Bigwood, H. T. Bill, R. H. Boyd, A. C. Broadbent, W. Broadbent, C. A. Broadhead, J. T. W. Brooke, A. E. Brooker, E. D. Brown, J. Brown, E. A. Brymer, A. A. Carder, W. A. T. Carter, R. M. Chalmers, A. L. Chapman, S. W. Clark, H. H. Clegg, A. R. Conder, V. C. Cook, E. C. R. Dibdin, H. H. Dodd, L. W. Ensor, J. W. H. Farrow, A. E. C. Fenoulhet, J. R. Fothergill, R. R. Gall, H. W. Gammidge, A. E. Gelder, C. R. B. Godman, V. R. Gould, W. L. Guest, E. Harding, J. A. Harrison, O. B. Hatchard, T. Hedges, A. Herklotz, W. H. Hobday, A. H. Johnson, L. A. Jones, S. A. Kelly, H. Kenchington, W. Leaning, A. H. Lewis, J. Love, G. H. Lovegrove, B. J. McAdam, A. McDonald, J. C. Mackenzie, H. N. Maunder, W. Michelmores, J. Miller, P. Minor, A. C. Notley, E. Ogden, C. T. Palmer, E. O. Payne, W. S. Payne, T. S. Peace, A. M. Peart, R. T. W. Purchas, A. R. F. Raven, G. Raymond, A. J. Redfern, W. B. Rees, W. F. Richardson, A. R. Robertson, J. G. Robertson, G. M. Roe, S. Salisbury, E. M. Simpson, G. S. Simpson, M. Skinner, E. R. Sladen, P. J. Smith, M. S. Stillman, F. G. Stockdale, F. A. Stowell, H. M. Tait, E. R. Taylor, A. Tedman, R. W. Thomas, F. E. Tomson, H. Wakeford, C. F. Wood, W. Ward, A. E. Webb, R. D. Wells, P. J. Westwood, J. Wilson, D. Wood, C. L. Wright.

INTERMEDIATE.

R. P. Twizell, T. J. Bee, S. Harrison, R. T. Barker, J. G. Ross, C. H. F. Comyn, J. E. Fawcett, A. E. Lacey, L. F. Ward, J. Quail, J. H. Gibbons, N. Thomas, C. H. Heathcote, S. G. Highmoor, H. Moger, H. Gelder, A. Woodroffe, J. F. J. Goodacre, P. J. Turner, R. D. Wells, G. A. Brown, J. M. Ross, A. S. Dorrell, J. I. P. Jones, H. S. Barrett, C. A. Strachan, R. B. Brook-Greaves, H. I. Triggs, E. G. Heathcote, P. T. Hopwood, F. R. Foster, W. Higenbotham, N. Thorp, J. T. Alexander, H. C. Bishop, F. W. A. Buckell, F. B. Chester, W. W. Ellison, P. E. Gloyn, K. J. S. Harris, J. H. Higson, J. Holt, G. F. M. Merriman, J. L. Nicholson, H. W. H. Palmer, A. R. P. Piercy, F. E. Price, E. E. Shepherd, E. A. Toombs, W. J. Walford, H. P. Williamson, W. Wrigley, C. F. Young.

FINAL.

J. C. Bains, P. C. Blow, V. E. Böhser, R. W. Carden, E. M. Charles, A. Cowie, S. C. Denmead, A. R. Gough, J. S. Harrison, A. Herbert, G. McMichael, L. Moore, C. Riddey, C. W. Surrey, A. W. Vercoe.

Professional Items.

ABERDEEN.—The extensions to the bathing station at Aberdeen, comprising a large swimming bath and a new block containing Russian, sitz, and several additional private baths, are now nearing completion. Like the original building, the new block is built of brick. It adjoins the south end of the main building, and is of two stories, with ornamental turrets at the four corners.

ASCOT.—The Royal Victoria Cottage Nursing Home has just been opened at Ascot. The building has been erected at a cost of £3400. The hospital is intended as a nurses' home as well as affording accommodation for patients. The architect is Mr. W. Menzies.

BIRMINGHAM.—The new Sunday Schools of Carver Street Wesleyan Chapel were opened last week. There is a large lecture hall. Twenty-four extra class-rooms have been provided, and there is a good kitchen and the usual outbuildings. The cost has been between £4000 and £5000. The new building has been designed by Mr. H. W. Lockwood, of Palatine Chambers, and Messrs. Malthouse and Ward are the contractors.

BRISTOL.—The site at the back of the Bristol Council House is being cleared for the erection of the temporary Council Chamber, the cost of which is to be limited to £2500. The City Engineer (Mr. T. H. Yabbicom) has endeavoured to provide a spacious, well-arranged, and convenient meeting-room. The entrance to the annexe will be at the half-level of the present staircase, the windows in which will have to be partially cut away to make room for the folding doors, which give access to a vestibule, behind this being a cloak-room. The Council Chamber will be 57ft. long by 34ft. wide and 21ft. in height.

CARDIFF.—The foundation and memorial stones of a new church have just been laid in Neville Street, Riverside, Cardiff. The building will be in the Perpendicular style of Architecture, with an imposing front, a fine central window being flanked by two ornate turrets, terminating in spires. Maescymmer thin coarse stones will be used, with Bath stone dressings. The architects are Messrs. Veall and Sant, and the contractor Mr. W. T. Morgan, Lochaber Street. The building now being proceeded with will give accommodation to 600 people, and will cost £3000. Space has been reserved for a schoolroom, and at a later date it is proposed to add a gallery to the chapel, bringing the total cost to over £4000.

DEVONPORT.—A new chapel is in course of erection at Ford, Devonport. The building is designed in Late Perpendicular style. It will be built of red brick, relieved by polyphant and Douling stone dressings. The main front will have a gable, with a handsome five light tracery window, and will be flanked on both sides with turrets. There will be two main large entrance doorways opening into a lobby, and one doorway to each turret, which will form the future gallery entrances. Two vestries are provided, together with an organ chamber and choir seats. Heating is to be supplied by means of hot-water pipes. The roof is to be open timbered, and the pews will have modern pitch-pine bench ends. Messrs. Wiblin and de Boynville, of Plymouth, are the architects, and the contractor is Mr. W. Partridge, of Mutley.

DONCASTER.—St. Mary's Church, Doncaster, which was built in 1885 from designs prepared by Lord Grimthorpe, has just been renovated and certain alterations effected. The structural alterations have been made by Mr. W. Anerley, builder, the painting, &c., done by Mr. W. N. Gyles, Copley Road, and the altar cloth, curtains, &c., were supplied by Messrs. Jones and Willis, Birmingham. The organ has been cleaned and re-toned by Mr. E. J. Pillin.

DUNDEE.—The Free Church at Bow of Fife has recently undergone reconstruction.

Erected from plans prepared by Mr. James Gillespie, St. Andrews, the building is in type characteristically Scotch. On the north-east flank there rises a substantial square tower to a height of 60ft., surmounted by a red tiled spire. The contractors were:—Mason, A. Black, Cupar; joiner, A. Smith, Cupar; slater, J. Fyffe, Cupar; plumber, W. Brown, Cupar; plasterer, A. McRitchie, Dundee; painter, J. Randall, Cupar.

GOVAN, N.B.—The hospital recently erected in connection with the Hawkhead Asylum of the Govan District Lunacy Board has been formally opened. The site of the hospital is to the east of the asylum, and it includes sections for the treatment of recent and acute cases, infectious cases, and sick and infirm cases. There are separate rooms for each patient, and accommodation is provided for 144 altogether. With the erection of the hospital the asylum buildings are now complete, the work of construction having been going on since 1891.

LIVERPOOL.—It has been decided to proceed shortly with the erection, in Kingsley Road, of the long-projected new church under the dedication of Our Lady of Lourdes and St. Bernard, to the designs of Messrs. Pugin and Pugin, of London. The estimated cost is about £8000. The new church, Gothic in style, will consist of a fine nave and a parallel chapel equal in length; the latter dedicated to Our Lady of Lourdes, with her altar and a grotto, the former to her apostle of predilection, the Monk of Clairvaux.

The Cook Street Arcade, which has been so long in course of construction, is steadily progressing towards completion, and the question of how the various archways are to be illuminated has been brought to the notice of the Corporation Lighting Committee. A report with reference thereto is to be prepared by Mr. Bellamy, superintendent of street lighting.

LONDON, E.—The new premises of the Church Training College for Lay Workers, situated at 384–392, Commercial Road, E., and erected at a total cost of £15,000, were formally opened last week. The buildings, which have been designed by Mr. Keith D. Young, are of a commodious character, and room has been provided for 40 resident students.

MALTON (Yorks.).—The old parish church of St. Nicholas, Norton, Malton, which has been replaced by the handsome but unfinished church of St. Peter, is at last to be pulled down. The building, which is so plain as to be bordering on ugliness, is not an ancient one, only dating from the close of the last century. The place is now getting into a dilapidated state, and it is absolutely necessary that something should be done, as there are some objects worth preserving. There is a fine east window of stained glass, with the emblems of the four Evangelists, and this it is hoped to transfer to the west end of the new church. There are also some important mural monuments, including one to the late John Scott, of Whitewall House, which is in the parish of Norton.

PEEBLES.—A drinking fountain has been erected in Peebles in memory of the late Professor Veitch. Erected to designs by Messrs. Sydney Mitchell and Wilson, Edinburgh, the fountain consists of a square base set diagonally with the angles rounded off. The sides are paneled, the panels being filled in with polished grey Aberdeen granite. From the base rises a richly-moulded and decorated Renaissance column, on the square die of the base of which there is a sunk panel filled in with an alto-relievo bust of the professor in bronze executed by Mr. Webster, sculptor Edinburgh. Above the square die is a circular moulded base, and the column proper rises above this from a cluster of acanthus leaves finely carved out of the solid granite, topped with a carved capital on which rests a lion in bronze supporting a shield bearing the Peebles arms. The shaft of the column is richly

decorated with festoons and drops of cherub heads and lyres in bronze. The whole fountain, with the exception of the bronze work and the Aberdeen grey granite panels of the base, is executed in fine axed Corrennie granite. There are two drinking basins with finely modelled bronze cups, and a dog trough is also provided. The fountain, which stands 14ft. 6in. high, has been built by Bailie Ramsay, Peebles. The decorative modelling and granite work is by Mr. Kerr, sculptor, Haymarket, Edinburgh; and the whole has been executed under the superintendence of the designers, Messrs. Sydney Mitchell and Wilson.

SHEFFIELD.—The new schools in Carver Street, Sheffield, are being pushed on rapidly, and it is expected that the whole will be ready for opening in October. The lecture room is an airy and well-lighted apartment, 50ft. square, and has accommodation for about 500 persons. It will be used as the young men's schoolroom and for other purposes which its name implies. Above the lecture hall is another room, about the same size, which will be a joint schoolroom for boys and girls. The young women's schoolroom measures 42ft. by 30ft., and there are about thirty class rooms, the whole forming very complete premises for the Sunday school and social work which centres at Carver Street. The total cost of the building and furnishing, together with the necessary alterations to the old premises, will be from £4500 to £5000. Mr. H. W. Lockwood, of Palatine Chambers, is the architect, and the contractors are: Masons and bricklayers, Messrs. Malthouse and Ward; carpenter and joiner, Mr. Enos Moore; slaters, Messrs. Staniforth and Lee; plasterers, Messrs. Hodkin and Jones; plumber, Mr. Hickson. The buildings throughout are heated on the low pressure hot-water system, by Messrs. Newton, Chambers, and Co.

WIGAN.—A new workhouse at Wigan is proposed. The present buildings in Frog Lane do not meet present requirements. Half a dozen sites have been under survey, but the one apparently in most favour is at Orrell. Some of the above sites are within the borough, one being Whitley and another Beech Hall, both healthy parts of the town.

WELLINGTON.—New buildings have been erected at Ketley at a cost of about £3000. The school provides accommodation for 360 children, including infants. The outside elevations are effective, being somewhat Elizabethan in style. The buildings have been erected by Messrs. R. and J. Millington, builders, Oakengates, from an excellent design by Mr. C. R. Dalglish, architect, Wellington and Shrewsbury.

WESTON-SUPER-MARE.—The Weston-super-Mare Pier Company is now having constructed a pier out from Birnbeck Island to a natural basin. The length of the new pier will be 950ft., and, though the structure is to be considerably in keeping with the existing pier, it will differ mainly in the fact of width, which is to be from 14ft. to 15ft., as against 20ft., the width of the present pier. There will be refuges and side-wings, whilst the seating accommodation will also be carried the whole length. A roomy pier-head will be constructed, with the usual timber piles and fenders. The buildings and offices on Birnbeck Island have been rebuilt at a cost of £2000. The whole buildings are of solid stone, and the ventilating arrangements in every department are admirable.

YORK.—The foundation stones of a new chapel at Bishopthorpe have been laid. The style of Architecture to be followed is Early Gothic, red bricks, with stone dressings, being used. The architects are Messrs. Hornsey and Monkman; Railway Street, York, and the contractors engaged on the work are as follows: Bricklayer, mason, joiner and plasterer, Mr. Jonathan Simpson; slater, Mr. Joseph Hardgrave; plumber, Mr. J. H. Shouksmith; painter, Messrs. W. Bellerby and Sons.

Views and Reviews.

THE STORY OF THE BRITISH COINAGE.

The history of the coinage of any country always throws an interesting sidelight on the history of its Art. The history of our British coinage, as unfolded before us here, is in many respects parallel to that of our Architecture. From Greece to the Greek colonies, in Southern France, and through France to Great Britain, is the history of both in a sentence. And precisely as debased Greek forms may be traced, and Greek influence may be felt, running through early French Architecture and spreading to England, so do we see it in the coinage. Three most interesting photographs of coins serve to illustrate the point. The original Stater of Philip II., of Macedon, then the copy executed by the Gauls, the "Philippine," and, lastly, the imitation of this copy made by the Britons—the British Stater. Those interested in the subject of coins—and what artist is not?—will find this book a serious contribution to the literature of the subject. It is called "The Story of the British Coinage," but it is rather too formal in arrangement to suit the title; it is more of a handbook or concise book of reference; the introduction is the only narrative part. The reign of each Sovereign is taken in order, and every coin minted during his reign is described. About 140 pages is devoted to England, fifty to Scotland, and twenty to Colonial coinage; there is also a note on tokens, and an index. There are 108 illustrations of coins of all dates, which give us, at a glance, the history of the art of designing coins. The contrast between the fine decorative effect of such coins as the gold florin of Edward III., or the rose-noble of Henry VII., and the utter commonplaceness of those of the Georges, or of the present day, is more instructive than pleasing. The book is nicely printed, handy in size, and popular in price. It should have a good circulation.

A. R. J.

"The Story of the British Coinage." By Gertrude Burford Rawlings. London: George, Newnes, Limited, 1898.

IRON AND STEEL BRIDGES.

This book, written primarily for students and apprentices, will be found useful by architects and engineers generally, who though not bridge specialists, carry out a good many important works of this description. The author, in his endeavour to make the principles and practice of bridge construction clear and concise, has omitted, in many instances, the reasons for his statements, giving the appearance of a hard and fast rule where only the best form for general practice is intended. In Chap. VII., on the "Preparation of Drawings," the author states: "That making an allowance for vibration is a mere farce, as there is no data upon which to base any figures." By vibration we suppose the dynamic action of suddenly applied load is meant, and here we differ from the author, as the intensity of this strain, though not absolutely known, can be closely estimated, and is a factor which should in every case be considered. In this opinion many of the principal bridge engineers in this country and America agree with us. This point is illustrated in Chapter IX., where a design for a lattice girder bridge is given 90ft. span, the strain per square inch of section being the same for both main and cross girders. Now the full load is applied to latter instantly, and a greater allowance should be made for the shock than in the former, where an appreciable time must elapse before it can be fully loaded and unloaded, and the number of applications of the load to the one is at least ten times that of the other. Before leaving this chapter, we would point out that the mode of fixing the cross girder to the bottom flange of the main girder is very indifferent, and in most recent specifications for important bridges the use of rivets in this manner is not allowed. The form of top and bottom flanges is not the best that could be adopted, as the centre lines of the bracing do not meet on the centre of gravity of the flange and produce a bending strain. Through-

out the book generally the details given show the principles involved and the practical limits of workmanship, and contain a large amount of information in a limited space. We draw the author's attention to a few errors. On page 104, where discussing the placing of rivets, diameter is used in place of radius, and a multiplication sign is used where addition is meant; on page 257 the weight of rivet heads is given as five per cent., whereas ten per cent. is allowed in the calculation; and, again, on page 259, 3½in. on one line becomes 3in. on the next. These printers' errors cause no trouble to the experienced draughtsman, but they are very trying to the student. Except that we hold different views on one or two points from the author, we have nothing but praise for the book as a whole, and it will well repay careful study by all interested in the design or construction of iron or steel structures.

"Iron and Steel Bridges." By Francis Campin, C.E., Crosby, Lockwood and Son. 3s. 6d.

Correspondence.

CARSHALTON COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—We note in your criticisms of the designs in the above competition last week two rather serious inaccuracies.

Firstly, There are no covered ways at all in our design, merely open roadways or pathways, as printed upon the plans, the food being proposed to be taken in motor vans to the different parts of the hospital along these roadways.

Secondly, It was *not* contrary to the instructions to have, as we did, larger strainers for block plan, as, according to the condition of the competition, the block plan was to be drawn to twice the scale of a very large site plan furnished with the conditions, which would have necessitated an even larger strainer.

Application was therefore made to the Board for leave to show only a portion of the site, and this was given, together with answers to other queries, so that it was open to all competitors to do as we did had they so wished; and, therefore, it is not right to say that we had any advantage over the others, or that we showed the whole of the site.—We are, dear Sir, yours faithfully,

NEWMAN & NEWMAN.

31, Tooley Street, London Bridge, July 13.

Enquiry Department.

A SMOKING APARTMENT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Please describe what sort of building and what size, also what preparation for fittings, is necessary in preparing plans and specification for a house or room for smoking bacon in a provincial town for trade purposes.—Yours, &c.,

"ARCHITECT."

Perhaps a reader with experience in this style of work will reply.

VALUATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you through your invaluable columns inform me of the best book on valuing property?—Yours faithfully,

J. A. B.

It would be quite impossible to say which is the best work on valuations; but we can recommend "Valuations and Compensations," by Professor Banister Fletcher, F.R.I.B.A., D.L., &c. Published at 5s. 6d., by B. T. Batsford, 94, High Holborn, W.C.

It is proposed to erect a new Wesleyan chapel at Barwick.

A NEW Congregational chapel which has been erected in Manor Road, Scarborough, has been opened.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BEXHILL-ON-SEA.—For the erection of college buildings, Dorset-road, Bexhill-on-Sea, for Mr. J. A. Brown. Mr. J. B. Wall, architect, Bexhill:—
P. Jenkins ... £4,350
H. E. Cruttenden ... 3,940

BRIDLINGTON QUAY.—For the erection of two houses, Belgrave-square, for Mr. J. Taylor. Mr. Samuel Dyer, architect, Bridlington Quay:—
J. Blackburn ... £2,135
E. Corner ... 1,700
F. Blackburn and Son, Peel-street, Hull* ... 1,624
*Accepted.

BRIDLINGTON.—For the erection of eight houses, Waterworks-street, for Messrs. Nornabell. Mr. Samuel Dyer, architect, Bridlington Quay:—
E. Corner ... £2,600
J. Sawdon ... 1,385
J. Rennard, Bridlington Quay (accepted) ... £1,385

BURTON LATIMER.—For erecting the Britannia Club and Institute, for the Building Committee. Messrs. Mosley and Anderson, architects, Northampton:—
C. Lewis ... £1,257
A. H. Dorman ... 1,249
Bradshaw and Cooper ... 1,224
F. Henson ... 1,220
A. J. Ball ... 1,190
A. Lewis ... £1,174
A. Traynar ... 1,169
R. Marriott ... 1,165
Wilson and Albright, Northampton* ... 1,061
*Accepted.

CARDIFF.—For the erection of temporary premises for Bots Intermediate Schools, Roath. Mr. Geo. Thomas, architect, Queen's Chambers, Cardiff. Quantities by architect:—
Humphreys & Co. £3,600 0 0
T. Hawkins & Co. 2,280 0 0
Evans and Owen 3,157 3 10
S. Shepton & Son 3,057 5 0
Harbrow ... 2,980 0 0
Cox and Bardo ... 2,975 17 0
G. Griffiths ... 2,897 17 0
W. H. Ingleson ... 2,786 8 0
E. Turner and Sons ... 2,738 0 0
W. Williams ... 2,699 0 0
J. Allan ... £2,656 0 0
E. R. Evans and Bros. ... 2,600 0 0
Jones Bros. ... 2,600 0 0
H. Smith ... 2,585 4 6
Latley and Co. ... 2,532 10 0
Newman & James ... 2,500 0 0
C. Price and Son ... 2,499 0 0
W. Symonds & Co. ... 2,443 0 0
C. C. Dunn ... 2,439 8 0
H. Gibbon* ... 2,398 0 0
*Accepted.

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LONDON.—For the erection of the "Alma" public-house, Parson's Green-lane, S.W., for the Royal Chelsea Brewery Company. Mr. A. Parnacott, architect:—
Lancelles and Co. ... £5,855
Ansell and Co. ... 5,678
Howell J. Williams ... 5,627
Joselyne and Young ... £5,487
Peacock Bros. ... 5,200

LONDON.—For alterations and additions to the "Prince Albert" public-house, Weedington-road, Kentish Town, for Messrs. Culley and Woodham. Messrs. Crickmay and Zimmerman, architects:—
Ransome ... £1,829
Barham ... 1,823
Charteris ... 1,753
Marchant and Hirst ... 1,773

NASH.—For pulling down and rebuilding the "Waterloo Inn," Nash, Monmouthshire, for Messrs. Phillips and Sons, Limited. Messrs. Swallow and Creighton, architects and surveyors, Steam Packet Chambers, Dock-street, Newport, Mon.:—
J. Prosser ... £1,686 0 0
J. Morgan ... 1,470 0 0
W. Jones & Son ... 1,378 0 0
C. H. Reed ... 1,300 0 0
H. C. Parfitt ... 1,298 0 0
W. Price ... 1,280 0 0
J. Linton ... 1,265 0 0
E. C. Jordan ... £1,217 0 0
A. E. Parfitt ... 1,190 0 0
J. and I. Davies ... 1,120 0 0
J. Charles, Newport* ... 1,069 0 0
E. U. Ridgway ... 1,067 13 11
J. Hooper ... 1,050 0 0
*Accepted.

PAISLEY (N.B.).—Accepted for additions to Riccarton Asylum (Male Hospital Extension for thirty-five new beds), for the Parish Council of Paisley. Mr. W. D. M'Lennan, architect, 96, High-street, Paisley. Messrs. Morrison and Matheson, measurers, 231, St. Vincent-street, Glasgow:—
Masonry.—B. Blackwell and Co., Paisley £1,059 16 8
Joinery.—J. Inglis, Paisley ... 692 18 10
Slating.—J. Jeffrey and Co., Paisley ... 109 18 1
Plumbing.—J. Martin, Paisley ... 205 6 10
Tiling.—J. Collins and Son, Paisley ... 71 5 2
Painting.—Simon Kemp, jun., Hamilton ... 59 15 0
Heating.—J. Boyd and Sons, Paisley ... 213 7 0

PLYMOUTH.—For additions to aerated water manufactory, for Messrs. Biscoombe & Son, Green-street, Plymouth. Messrs. Keats & Coath Adams, architects:—
P. Blowey ... £1,597
A. N. Coles ... 1,395
A. Andrews ... 1,307
W. E. Blake ... 1,247
Tozer and Son ... 1,228
A. R. Lethbridge and Son £1,225
Pearce Bros. ... 1,159
G. B. Turpin ... 1,148
Pearn Bros.* ... 1,145
*Accepted.

ROMFORD.—For the erection of two houses and various other works in North-street, Romford, for Mr. E. Schwier. Mr. J. Kennedy, architect, 25, Bedford-row, W.C.:—
Norton ... £2,208 0
Bell and Son ... 2,191 5
Bruty ... 2,126 0
Hosking ... 2,126 0
Hammond and Sons, Romford ... 2,093 0

RUABON (Wales).—For additions, &c., to schools, Acrefair, for the School Board. Messrs. J. Morrison and Son, architects, King-street, Wrexham. Quantities by the architects:—
J. Davies ... £2,684
J. T. Jones, Cefn, Ruabon (accepted) ... £2,175
W. E. Samuel ... 2,430
J. Gethin ... 2,072

SHERBORNE (Dorset).—For the erection of a residence. Mr. T. Farrall, architect, St. John's-chambers, Sherborne:—
Lye and Sons ... £1,729 16 1
Rowsell and Son ... 1,670 0 0
H. Gillingham, North Wootton* £1,498 0 0
G. Pitman ... 1,340 10 4
*Accepted.

CONTRACTS OPEN.

ST. GEORGE-IN-THE-EAST PARISH. TO ENGINEERS.

The Guardians of the Poor of the above Parish hereby invite TENDERS for the PROVIDING and FIXING TWO NEW STEAM BOILERS and other Works, at the Workhouse, Raine-street, Old Gravel-lane, E.

Plans may be seen, and specification form of Tender, and further particulars obtained at the office of Mr. G. A. WILSON, Vestry Hall, Cable Street, E., on a deposit of a £10 Bank of England note, which will be returned upon receipt of a bona-fide Tender.

Tenders, endorsed "Tender for Boilers," to be sent to my office not later than TWO o'clock on JULY 22nd, 1898.

The Guardians do not bind themselves to accept the lowest or any Tender.

The contractor will be required to enter into a bond (if called upon) for the due performance of the contract, and no work will be ordered under the contract until such bond has been executed.

Persons sending in proposals must attend themselves (or by duly authorised agent) at the Board-room, Raine-street, Old Gravel-lane, E., at FOUR o'clock on the 22nd inst.

By order, J. R. BROWNE, Clerk.

Guardian's Offices, Raine-street, Old Gravel-lane, E., July 12th, 1898.

NEWHAVEN UNION. TO BUILDERS.

The Guardians of the Newhaven Union invite TENDERS for the ERECTION OF NEW KITCHEN, SCULLERY, and OFFICES, on land adjoining the Workhouse of the Union, and a CONNECTING CORRIDOR to the Infirmary and Workhouse, and for ALTERATIONS and ADDITIONS to the said WORKHOUSE.

Forms of Tender can be obtained, and plans and specifications seen, at the Office of Messrs. CLAYTON and BLACK, the Architects, 152, North-street, Brighton, or at my Office, and bills of quantities can be obtained of them or me on payment of One Guinea, which will be returned on receipt of a bona-fide Tender.

The Guardians may require the work to be done in two sections, but no Tender will be accepted to carry out either section only.

Sealed Tenders, on the forms supplied, and marked "Tender for New Kitchen and Alterations to Workhouse," must be delivered at my Office on or before JULY 21st, 1898, at SIX o'clock in the afternoon.

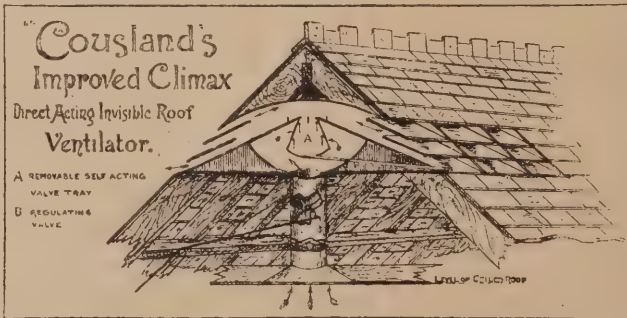
The Guardians do not bind themselves to accept the lowest or any Tender.

By order of the Board, No. 86, High-street, LEWES, June 30th, 1898. WILLIAM GATES, Clerk to the Guardians.

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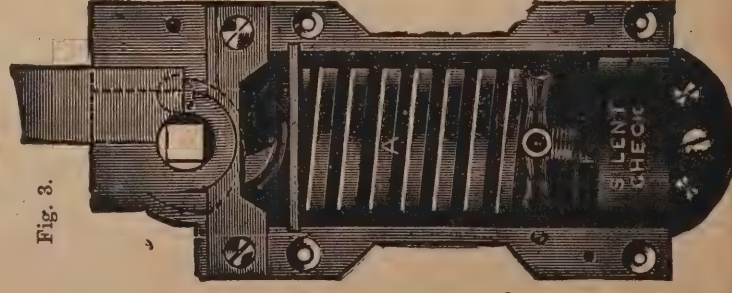
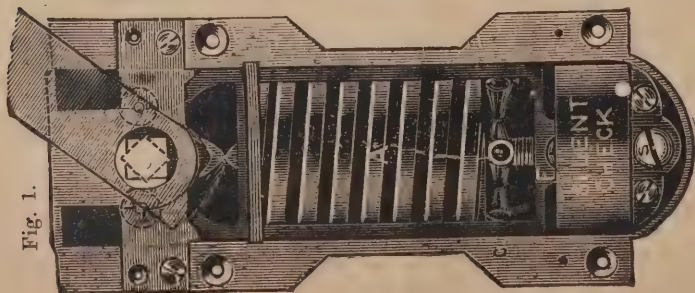
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SEWER VENTILATION.

AT a time like the present—writes a correspondent—when the subject of sewer ventilation is engaging so much of the public attention, a plain statement of the position of expert knowledge upon the matter may not be without interest or profit. The common conception of a sewer as a channel partly filled by a stream of decomposing filth, and partly by an accumulation of foetid gases under considerable pressure, is entirely erroneous. In a properly-constructed and efficiently-flushed sewer the contents are never stationary, and do not undergo decomposition. The air of such sewers is not markedly different from the external air as regards chemical composition, nor does it contain germs in excessive numbers or of peculiarly dangerous nature. In

BADLY-CONSTRUCTED AND BADLY-FLUSHED sewers, or in those which from subsidence or other accident the floor has become uneven so as to permit of stagnation and decomposition, the case is different. Here gases, and most offensive gases, are generated and accumulate within the system. Such gases are at a temperature higher than the external air, and may be under some slight degree of pressure, they naturally tend to accumulate in the highest part of the local drainage scheme. Their escape is effected either through some defect in the sewer, or by their forcing their way through the traps which guard the entrances of street gullies or private house drains. Offensive smells are thus peculiarly liable to be detected in the more elevated portions of the town. The question then arises, "Are such escapes of sewer-air capable of causing ill-health or of spreading definite diseases?" The question was very thoroughly discussed at the meeting of the British Medical Association in 1895, and the consensus of opinion showed that whilst the

INHALATION OF SEWER GAS

might, if continued, lead to lowered vitality, and thus predispose to infection, yet there was no evidence to show that specific infectious diseases were ever spread by this means. It has been definitely asserted that no disease-producing germ has ever been detected in sewer air, although many experimenters have attempted the task of their discovery. But even if we take it for granted that a lowered vitality and a certain degree of discomfort are the sole evils arising from the obnoxious odours, surely these two alone are sufficient to justify measures being taken to abate the nuisance. As to the nature of the remedy there can, we think, be very little doubt that the simplest and most efficacious is "sewer ventilation." Whatever may have been the opinion in 1875, at the present day sanitary authorities are practically unanimous in favour of free ventilation. The past twenty-three years have seen a marvellous progress in hygienic affairs, and the progress we cannot afford to disregard. The following report, by the Chief Engineer to the London County Council, which has during the past month been distributed for the various

SANITARY AUTHORITIES OF THE METROPOLIS, succinctly epitomises the whole matter: "In accordance with the instructions of the committee, I issued two circular letters to the engineers and surveyors of the various vestries and district boards in the county, inviting them to a conference on the subject of the ventilation of sewers, with a view to some uniform system being adopted, if possible, for dealing with complaints of offensive emanations from gratings connected with both local and main sewers. In response to the invitation, a meeting was held at the County Hall on Friday, February 25th, at which upwards of forty of the gentlemen invited were present. The discussion on the subject of the ventilation of sewers occupied a period of over two hours, and resulted in the following resolutions being passed, namely—

"1. That the closing of sewer ventilators in response to complaints increases the general evil, the diminution of which is to be attained by the multiplication of the ventilators at regular frequent intervals

"2. That in connection with any interceptor hereafter fixed on a main house drain, it is advisable to carry up a ventilating pipe from the sewer side of the interceptor, up the front, side, or back of the house, to the satisfaction of the local sanitary authority, and that the outlet drain from the interceptor shall not be flap-trapped in sewer, unless required by the local sanitary authority.

"3. That pipe ventilators up buildings, or otherwise where possible, should always be adopted, in addition to surface ventilation.

"It will be observed that the general result of the conference has confirmed the action of the committee and the Council in recent years, and that the remedy for sewer emanations is to be looked for from the maintenance of more frequent ventilating openings, both at the street level and by means of pipes carried up houses and other buildings."

Sanitary Work in Birmingham.

THE construction of underground lavatories in High Street (Bull Ring) and Corporation Street (Old Square) has been commenced by the Birmingham Public Works Committee. The work, owing to the large amount of excavation which it involves and the massiveness of the main structures, will not be completed until about October. In each case there will be a department for ladies, this being the first instance in which the Birmingham Corporation has made such provision—except in such cases as that of the Market Hall and the Law Courts. The larger of the two lavatories is that which is being provided on the open space between the Nelson Statue and St. Martin's Church. The general plan of the subterranean area is that of a triangle with the corners rounded off, and on paper resembles that of the afterpart of a ship. The length, measured in the direction of the slope, will be 50ft., and the width at the smaller end 16ft., and at the larger end 32ft. The smaller end will be towards the upper part of the slope, and at this end will be the entrance to the ladies' room. The average depth of the floor below the street will be about 9ft., and the area will be covered with glass prisms on the ground level, forming a "refuge," so that very little will be taken from the present street area. The entrances will be provided with ornamental iron railings, and upon the refuge triple street lamps. The interior of the lavatories will be faced with ivory-white glazed bricks, and the steps will be of hard York stone. The wood fittings will be of teak, and the divisions of polished rouge Royal marble. The sanitary fittings will embody all the latest improvements, including Jennings' "Century" closets, with syphonic discharge. A water-driven air-propeller will provide ventilation for both departments. In Corporation Street, the lavatory is being constructed partly under the triangular refuge round which the tramcars pass and partly under the roadway of Corporation Street. Its general plan will be, like that of the refuge—that of a triangle with hollowed sides and rounded angles. The base of the triangle running in the line of the street will measure about 46ft., and the distance from the base to the apex (which will be towards the upper part of the Square) about 33ft. The women's department will extend about 6ft. under Corporation Street, and will be roofed with Lindsay's patent steel decking, over which will be a layer of concrete supporting the wood pavement. The floor of the lavatory will be about 9ft. below the roadway. The fittings will be of teak and pitchpine with marble divisions and slabs. Doulton's automatic flushing contrivances will be used in the sanitary arrangements. The entrances will be by stone steps, protected by ornamental railings and lamps, and the refuge will be paved with glass prisms. The total cost of the two buildings will be about £4000.

The first stone of the new docks at Ostend was laid recently.

Builders' Notes.

It is twenty years ago and more since so interesting and important a military operation as that which took place recently near Chatham has been carried out. It is not probable that any of those who were present at the bridging of the Medway by the Royal Engineers in 1875 were present when the same feat was performed last week, but had there been any such, military or civilian, they could hardly fail to have been struck with the improvements in the means and appliances by which the operation becomes a less serious one nowadays, and is carried out more quickly and with a greater command of resources. The Royal Engineers at Chatham, having decided to bridge the Medway across the reach between Chatham Dockyard and Upnor, as an important feature of the course of instruction at the School of Military Engineering, some 200 officers and men set to work upon the operation last week, and on Tuesday the bridge was completed and "open for traffic" for a few hours. Major-General Fraser, the commandant of the school, had good reason to be proud of the bridge, and of the manner in which it was constructed. The site of it was deliberately selected on account of the difficulties presented by the high river wall and the deep mud on the dockyard side. The width of the river there (1190ft. at high water), the strong tide, and the difficulties which were expected from passing traffic, were also considered to be "useful factors in instruction." At the dockyard end a special form of two-legged trestle was used, each leg consisting of two spars, the road transom sliding between them, and supported by a chain or two half hitches round each spar. The largest trestle was 33ft. high. Forty-six service pontoons were used, with 217 108-gallon casks and 90 36-gallon casks.

WRITING on the subject of machinery in connection with the building trade, a correspondent says:—"Until recently less improvements have been made in the way of labour-saving appliances, &c., in our trade than in any other, but this state of affairs is coming to an end, as many of my fellow-workmen know who have seen the machinery I am going to allude to at work. For the information of those who have not, I give a description. The machinery referred to is really marvellous in its capabilities, and has been at work on a Government contract during the last two years. It does all kinds of masonry work in a far superior manner to that done by hand, in the usual way, and enables one man to do as much as fifty. It cuts and works stone ready for the building at the same speed as an ordinary circular saw cuts wood, and it does not require any further dressing or labour whatever. I understand it is intended to put these machines down in all the principal cities and towns in the United Kingdom, and supply the stone to builders and contractors ready for fixing. They will thus be able to dispense with a large number of masons. On an average, it takes a mason two hours to square and dress the ends of a piece of ashlar, or masonry, having a sectional area of one square foot. The same work can be done with the Diamond machinery in less than five minutes. The time for doing this work by hand labour, as at present, is over 2000 per cent. more, and the actual cost 400 per cent. more than by the Diamond machinery.

"ONE of the most important of the many exceptional advantages presented by this system is, that it is not necessary to spend a large sum in the erection of costly buildings, and enormous quantities of expensive plant and working tools, as is the case in almost every other industry. The whole of the machinery and plant can be taken down, removed from one place or district in a city, town, or part of the country, to another, at a trifling cost, the only buildings required being merely sheds or covers as protection against the weather. Such a saving of labour has not been effected since the introduction of the power-loom or spinning-mule. The machinery

is also capable of producing bow or bay windows without any hand or manual labour whatever, except the machinery attendant. Thousands of those windows are now being put into cottages annually, and they can be produced complete, and sold ready for the building, at a cost of 50 per cent. less than they can be made by hand as at present. This marvellous machinery will affect our interests as seriously as the steam power-loom did the hand-loom weavers. I hope my fellow-workmen will not play into the masters' hands by compelling them to fight us with our own tools as it were—they will do that fast enough in their own interests in any case."

THE Bill promoted by the Chelsea Electricity Supply Company Limited was further considered last week by the Select Committee of the House of Lords. The Company seeks powers to compulsorily acquire additional land adjoining the site of the present works in Alpha Place and Flood Street, Chelsea, to erect generating stations, and for other purposes. The Bill is opposed by the Chelsea Vestry, the London County Council, Earl Cadogan, and other owners, lessees, and occupiers in the neighbourhood. The main objection is the alleged vibration already caused by the present generating station. Some evidence was given to show that incessant rattling of windows and doors was caused while the engines were working, and there were cracks in the walls and ceilings. Grit, soot, and smoke from the chimney shaft were also complained of, and that on account of the nuisance the value of property in the neighbourhood was greatly depreciating.—Mr. Thomas Holland, clerk to the vestry of Chelsea, in view of the report of the joint committee on electrical energy, suggested that the Company should establish its large generating station outside London, and use its present site merely as a distributing station.—Mr. Balfour Browne, Q.C., in his reply for the promoters, said that this was the first case in which an electricity company asked for compulsory powers to acquire land. Under compulsory purchase surrounding owners had the right to be heard in opposition, whereas under purchase by agreement they had no such right. If their opposition was successful no nuisance could be created.—The Committee decided that the preamble of the Bill was proved.

THE completion of the Great Central Railway line into London will bring about a great transformation at Neasden, one of the North-western suburbs. At Neasden a new railway town is being created which in the near future will vie in importance with Willesden. Some forty or fifty neat cottages have already been completed, and the foundations of perhaps as many more have been dug. Not far from this is a great engine-shed capable of accommodating thirty-six engines, and equipped with fitting shops and other adjuncts of a locomotive centre. Elsewhere work is proceeding on another large structure which is ultimately to be used as a carriage shed for the housing of the Company's surplus rolling stock, while all around, over an area of sixty acres, is a maze of sidings into which the goods traffic as it comes from the North will be poured. In preparing the site for its future purpose some great engineering works have had to be executed. One of these was the construction of an aqueduct 200 yds. long, with two openings of 10 ft. in diameter, to provide for the water of the River Brent, which flows through the site. Another and more important project still in hand is the provision of a main, 10 ft. in diameter, in connection with the great scheme of the New River Company for the enlargement of their water supply to the metropolis. A small army of workmen are engaged on this last-named project. When finished it will be covered over with soil to the depth of several feet, and the future traveller on the line will not suspect that beneath the busy goods yard of the line flows a very considerable portion of the water supply of London. Most of the arrangements necessitated by the coming opening of the line are well advanced. But it will be a long time yet ere the place assumes its completed aspect.

Surveying and Sanitary Notes.

AT Colne a Local Government Board inquiry has been held into the application of the Borough of Colne for sanction to a loan of £24,400 for works of private street improvement, and £4200 for the erection of stables.

EVERYBODY knows that Russia's railway system is being extended with great rapidity. In Europe, according to one of our consuls, she is computed to have more than 2000 kiloms. of lines under construction, whilst in Asia the work of connecting the chief centres is being pushed forward with much rapidity. The line connecting Vologda with Archangel, 640 kiloms. in length, is completed, or nearly so, and, before the end of 1898, 700 kiloms. should be contributed towards the completion of the Moscow-Kiev-Voroneje net. A very extensive scheme for the construction of light railways throughout the Empire is also said to be in contemplation.

AT the Surveyors' Institute, Savoy Street, last week, Mr. James Green, the arbitrator appointed by the Local Government Board, sat to determine the value of the property within the area of the Tottenham Court Road improvement scheme. The first case considered was that of Messrs. William Henry and Richard Baker, lessees of the premises, No. 4, Tottenham Court Road. Mr. Vigers and Mr. Horne, surveyors and valuers, estimated the value of the lessees' interest at £23,403. For the County Council, Mr. Andrew Young and Mr. Wilkinson valued the interest at £21,384. The next case, No. 2, Tottenham Court Road, the property of Mrs. Amelia Lansdale, was agreed to, the value being fixed at £3232. In the case of Mr. Gardner, lessee of 4, Oxford Street, and premises at Bowes' Court, the County Council agreed that there was no value, and no evidence was offered. The premises, No. 9, Bowes' Court, and 1A, Tottenham Court Road, the property of Hay's executors, were valued by Sir John Whittaker Ellis at £22,600. Mr. A. Young and Mr. Wilkinson estimated the value at £14,960.

PROVIDENCE having now blessed our Metropolis with beautiful summer weather, the local authorities—those at least who are charged with preserving it bright and clean—are naturally doing their best to counteract the gifts from above by keeping the streets under our feet as dusty and offensive as possible. One might reasonably suppose that the Strand and Fleet Street are sufficiently important thoroughfares to merit being thoroughly cleansed and purified before the full work of the day begins, but so far from this being the case, the humble scavenger may be found busily at work up to ten or eleven o'clock, eagerly qualifying for an increase of pay by filling the air as thickly as he can with microbes. The streets mentioned are not the only ones where this system of increasing the burden of tropical heat by dust and nauseous odours at untimely hours prevails, but they may be taken as types. All kinds of refuse are brought down from the courts and alleys in the neighbourhood, and have to be carted away in the full blaze of the sun. Surely the sanitary authorities could easily arrange to complete all such work at a reasonably early hour in the morning, before the everyday life in London is in full swing and in this way add to the amenities, as well as the health of the capital.

THE Bill promoted by the Metropolitan Railway Company seeking power to acquire lands for the further ventilation of their system was recently under the consideration of a House of Lords committee, over which Lord Brougham presided. The petitioners against the Bill were the Paddington Vestry, the Great Western Railway, the St. Marylebone Vestry, the St. Pancras Vestry, and the London County Council. Mr. Littler, Q.C.,

for the promoters, said the object of the Bill would command the sympathy of all travellers on the Metropolitan Railway. When the line was constructed the idea was to use hot-air engines, but they were found to be perfectly hopeless, and the ordinary locomotive engines were resorted to. All along the company had been anxious to improve the ventilation. Fans, extremely costly and inconvenient, were introduced for this purpose, but, as proceedings were commenced by objecting parties, ventilation holes were tried. To these the local authorities had been opposed, contending that the Company should acquire land which the local authorities did not need for their own purposes in order to improve the street communication.

THE whole matter had been before the House of Lords, and dealt with by a departmental committee over which Sir Francis Marindin presided. This committee concluded that the most satisfactory method of dealing with the ventilation of the Metropolitan tunnels would be by the adoption of electric traction. In view of the probable adoption of electric traction in the near future, the committee, as a temporary measure, recommended the construction of additional openings, which would be found useful even when the line was worked electrically, but only upon the condition that, unless the electric traction were adopted, or some satisfactory artificial ventilation introduced within three years, it should be incumbent upon the Company to close them if desired by some competent authority. This recommendation of a temporary measure the Company were now seeking to adopt. The time had not arrived when it would be wise to substitute electric traction for the present means of locomotion, but arrangements were in process with the District Railway for experiments to that end. The improvement now sought was purely in the interests of the travelling public, for which the Company were prepared to spend £80,000.—Colonel Bell, the chairman of the Metropolitan Company, said that arrangements had been concluded with the Metropolitan District Company for the experiments with electricity.—Sir Benjamin Baker stated that the electrical experiments referred to would occupy at least twelve months.

THE Royal Commission appointed to inquire into the question of the Metropolitan Water Supply sat last week at the Westminster Guildhall, Lord Llandaff presiding. Mr. Bigwood, M.P. for the Brentford Division of Middlesex, gave evidence with respect to the companies that supplied Middlesex. Asked by the chairman which of the companies drew water from sources in Middlesex, the witness said he believed that all of them did. The New River Company drew from wells and from the Thames; but he did not think either the West Middlesex Company or the Grand Junction Company had wells. Mr. Bigwood, continuing, said he understood that the New River Company had no statutory powers with regard to wells, but drew as landowners. Middlesex had petitioned against the various purchase Bills that the London County Council had introduced. The County pleaded for non-interference, as it was perfectly satisfied at present.—The Chairman inquired whether Finchley was satisfied, whether the locality was properly supplied at present.—Mr. Bigwood said it might be that the supply to Finchley was inadequate, but there was no reason why it should be. If the supply was inadequate it would, he believed, be easy to remedy it. He did not personally favour the purchase of the water undertakings by any one. The feeling in Middlesex was that they were perfectly satisfied with their present position, and no fears were entertained for the water supply in the immediate future. It was the opinion of the County that there was an ample supply under their own soil without going elsewhere. Mr. Bigwood expressed himself in favour of the water companies being placed under a board of control, which should be composed of representatives of the County Council, the district council, the water companies, and the Government, the last to be in the majority.

MANCHESTER AND ITS BUILDING TRADES EXHIBITION.

By G. LL. MORRIS.

MANCHESTER might reasonably be called the capital of the cotton towns, for it is essentially the visible and highest expression of the life which animates the Lancashire "hell-holes," as Cobbett aptly named them. That life, for the most part, is sordid, cheap, and dirty; and Manchester, its principal outcome, remains the great achievement and triumph of cotton industry. Passing



STAINED GLASS FOR A YORKSHIRE HOTEL.
BY WALTER T. PEARCE.

through the streets, seeing the wares on sale, the places of amusement, and visiting the buildings, we but find the spirit of the cotton town in a more exaggerated form: much vulgarity, ostentation, and imitativeness, but very little that is sweet and pleasant, fresh and vitalising. The Manchester man's ideal pleasure house seems to be Belle Vue, his god mammon,



GLASS AT MERCANTILE BANK, MOSLEY STREET,
MANCHESTER. BY WALTER T. PEARCE.

and his arts and handicrafts are realised to his complete and complacent satisfaction in his restaurant, his pub, his music hall, and his chapel. Manchester folk have just concluded an exhibition at St. James's Hall, where there was gathered together what we may presume is representative of Manchester's building trades

and decorative arts. It was a poor show, but, under the circumstances, better, perhaps, than we could have believed possible in the City of Manchester; for, amid much which was dull and uninteresting, were a few stands claiming some attention.

C. W. WILLIAMS,

of Carr Street, Manchester, had two or three interesting exhibits. One of them was a very good chimneypiece, designed by C. H. B. Quennell. It is made in oak, fumigated apparently, and then stained. Two broad and square-like looking pilasters at either end extend without interruption from the base mould to the large projecting cornice at the top. Small columns are placed upon the outer edge of the mantelshelf, and finish under the principal moulding. Some of the later work by this architect seems to lack the careful thought which has evidently been bestowed upon this design. The grate set in the green brick had been very well arranged by C. W. Williams, with a broad border of copper isolating the grate from the bricks, both harmonising satisfactorily with the dark woodwork; it would have been better possibly if the copper was less highly finished, and not raised so much above the surface of the green brick.

At the same stand were some tiles designed by C. Voysey and arranged by C. W. Williams for dados. One scheme is called "the sea, the earth, and the sky," and consists of a number of plain tiles of a blue colour in the lower part of the dado; these run four courses in height, above are two more courses of the same colour, each alternate tile having a ship upon it with red flags flying, dark yellow sails bellying out before the wind; above this again is another row of a purplish brown colour, covering about a third of the surface, this, we imagine, represents the earth. This is completed with three more rows of very faint blue tiles, every other one filled with a bird dark blue in colour; the bird is on the wing. The whole effect is interesting, but hardly perhaps so satisfactory as the arrangement next to it, a really beautiful design, in which a fish and leaf is introduced in harmonies of green upon each tile.

MARTEN VAN STRAATEN'S

enamelled tiles close to this stand are rather good in colour; the mottled effect produced being not unlike the Lethaby green brick.

MESSRS. JOHN HARRIS AND SONS,

of Cockermouth, exhibited a number of their flax specialities and embroideries. Among the ecclesiastical embroideries is an exquisite altar frontal, and also examples of antependiums, stoles, veils, &c. This firm also exhibits a new Cumbrian art material, suitable for portière, curtains, &c., and flax silk cloth, artistically woven together; it is claimed that this fabric is absolutely uncreasable, and drapes perfectly. Another among Messrs. Harris's specialities is their flax embroidery threads, which are made in over 300 shades. Altogether, these embroideries show considerable originality of design, artistic execution, and taste in colour.

GEORGE WRAGGE,

of Salford, Manchester, exhibited some good metal work in copper, brass, pewter, iron, and bronze, all carried out from designs by Edgar Wood. If we are unable always to admire this architect's use of forms suggested by flowers and foliage for treatment in metal, it is impossible to deny that his fertility in design is linked to a knowledge of the material. At the same time a little more restraint would not be amiss on the ironwork at this stand. Another interesting stand is that of

WALTER T. PEARCE,

12 and 14, Albert Street, Manchester, who showed several kinds of leaded light work. In both design, colour, and workmanship, this glazing has characteristics which distinguish it from the ordinary "commercial artist in stained glass" type of design. In some of the exhibits, opalescent and Venetian glass had been introduced—in one particular instance, realising a very beautiful effect. The

use of a lead, narrow in width and semicircular in section, has been adopted when the glass is in small pieces, the little distance between the leads preventing any wiriness of effect. When the glass covers larger surfaces, the use of the narrow lead seems unsatisfactory; to obviate this, two or three widths are occasionally used in the same window. In ancient lead-glazing a broad and flat lead was almost universal, and there seems no reason why it should not still be adopted in simple work. (We illustrate some of the simpler designs.) The Vitreum mosaic shown by the same artists, and intended as "a permanent decoration for friezes, panels, dados, &c.," has possibilities, if we may judge from the examples, but at present their success in this direction seems tentative, and awaits



STAINED GLASS FOR A YORKSHIRE HOTEL.
BY WALTER T. PEARCE.

future developments before it can be considered altogether satisfactory.

MORRISON, INGRAM, AND CO.,

sanitary engineers, exhibited baths, lavatories, and sanitary fittings of all kinds. The white porcelain basins and the brass taps and fittings are inoffensive and suitable for their



GLASS AT MERCANTILE BANK, MOSLEY STREET,
MANCHESTER. BY WALTER T. PEARCE.

purpose, but where they have endeavoured to, make beautiful the woodwork and the necessary ironwork surrounding the actual appliances, the result has been disastrous. This criticism applies to other exhibitors. The ventilators shown by

J. HAMILTON,

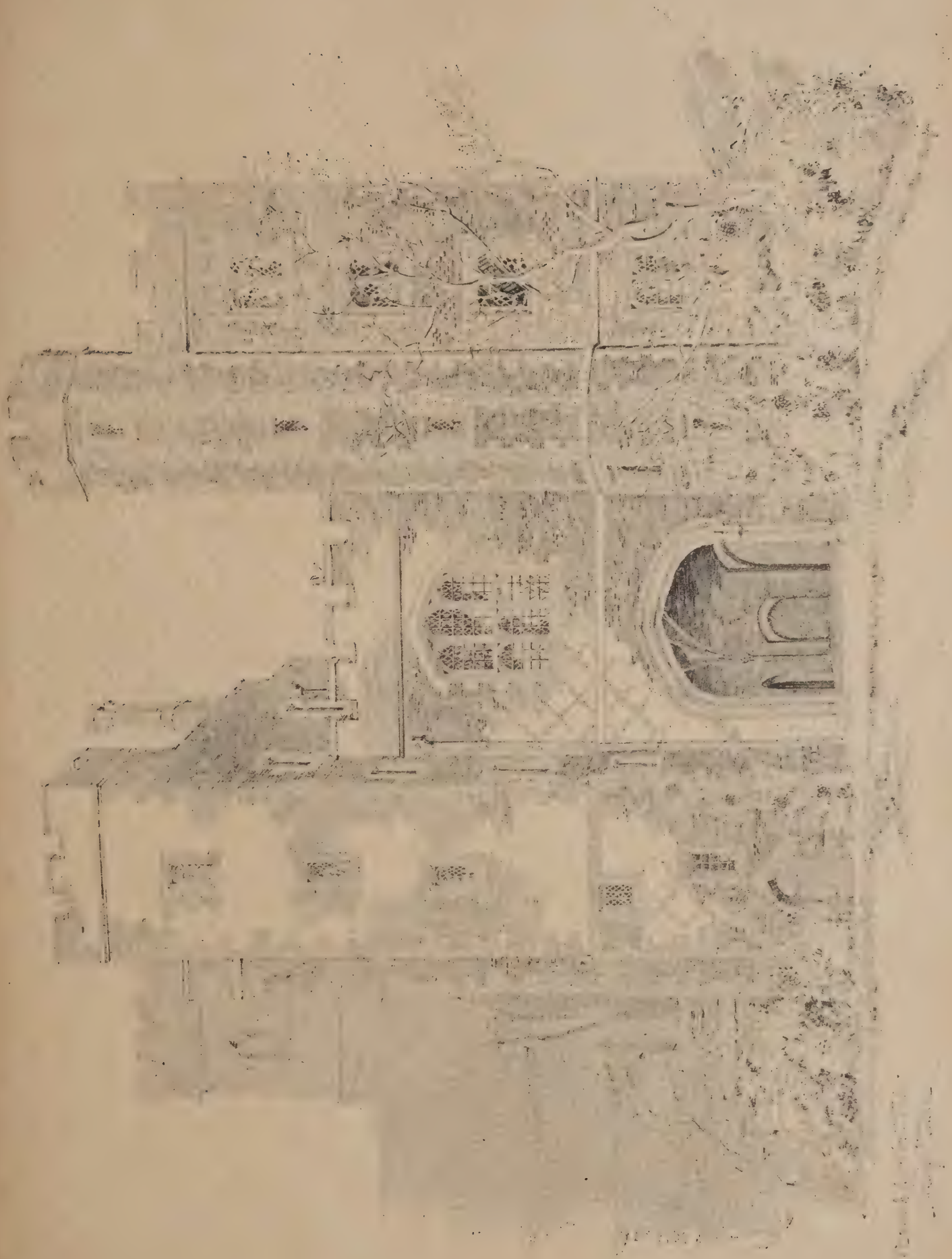
ventilating engineer, Rochdale, for instance,

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SKETCHES AROUND LONDON. No. 2. A CORNER IN PETERSHAM.

DRAWN BY H. F. WARING.



SKETCHES AROUND LONDON. No. 3. CARDINAL MORTON'S TOWER, LAMBETH PALACE. DRAWN BY H. F. WAREING.

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are not pleasing in design, and, while their effectiveness as ventilators may be very satisfactory, their beauty might be enhanced without detriment to their usefulness.

JABEZ THOMPSON,
Northwich, exhibited an example of "ornamental" brickwork. The ornament is weak and the mouldings coarse.
Doulton, John Jones, and the Victoria Stone Company, are the names of other firms who exhibited. The buildings erected of late by the architects of Manchester are illustrated by a number of poor drawings; of the Architecture, it would, perhaps, be more charitable to pass by in silence. We may add, perhaps, without being accused of partiality, that we almost prefer the architectural room at the Academy. Manchester has yet a great deal to learn in the Arts and handicrafts.

FROM the evidence given by M. Gaston Cadoux, the Chef de Bureau at the Prefecture of the Seine, before the Royal Commission on London Water Supply, says the Hospital, it would appear that a very interesting bacteriological experiment is periodically tried in Paris on a very large scale. People in Paris have a double water supply, spring water used for drinking and domestic purposes, and Seine water for municipal purposes. The pipes are quite separate and distinct. Unfortunately, however, the spring water is apt to run short, and when this happens they have to pump Seine water into the spring water reservoirs. "They have to pump up the bad water, if I may use that term, into the reservoir, which is generally full of pure, good water," and send it along the pipes that should have pure water in them. Now, when this is done the pipes become infected with the bacteria carried by the Seine water. The result is curious. When they turn spring water into the pipes that have been carrying river water an enormous development of bacteria occurs. Then, after the pure water has gone through the pipes for two or three days the development ceases, all of which is in accordance with well-known bacteriological experience. Perhaps it is something of the same sort that happens now and again when London water is found temporarily to contain large numbers of microbes. Not that the London water companies turn their water into dirty pipes. But if an "infection" of pure water by dirty pipes will produce such an enormous development of microbes, an "infection" by the passage of a little unfiltered or ill-filtered river water would have the same effect. When great numbers of microbes are found in London water, as does happen now and again, it is not necessary to imagine that all these have passed the filters. Only a very small number may have got through, but sufficient to inoculate the mass, just as the trace remaining in the pipes of Paris infects the pure water flowing through them. It is of small use to have pure water as a general thing, if it is left subject to occasional pollution even by comparatively small quantities of unfiltered river water; for, small as it may be, the microbes it contains will, as M. Cadoux says, "multiply enormously" in the pure water, and thus defile it.

REMOVING A MOUNTAIN.

BY A SPECIAL CORRESPONDENT.

NOW that the tourist season has well set in, the Lake District tourist will be turning his thoughts towards the neighbourhood of Keswick, and it may be that as he goes along that little railway known as the Cockermouth, Keswick, and Penrith line, he will have his eye upon the precipitous sides of Blencathra, as he runs down from Troutbeck Station to Threlkeld. The view, it must be granted, is sufficiently fine to attract the attention of the most unæsthetic, but on the other side of the line, as the train approaches Threlkeld Station, there is to be seen a sight of a different kind. Here the mountain is not in its primitive simplicity, for the sides are scored from the effects of many blasts of quite another kind than those that beat upon Blencathra, and the face of the rock is even more precipitous than is the face of the opposite fell. Here the mountain is being gradually removed

FOR THE SAKE OF THE MATERIALS of which it is made, and the granite is being broken up for an immense variety of purposes, not the least important being the provision of "ballast" for the line of the London and North-Western Railway, which takes away every day about 200 tons of Threlkeld granite for this purpose. Here is the quarry of the Threlkeld Granite Company, whose works are extending at a rate that only those who go past them frequently are able to fully comprehend. From the small affair of a few years ago it has now become an extensive undertaking. The area of the quarry is about 700 acres, and the rock will last, at the present rate of output, for at least 200 years. This, at any rate, will afford labour for mankind for a little while, even if the workings are then exhausted—and it is scarcely likely that they will be. But the special interest of the works at the moment lies in the fact that of late there has been here introduced the making of ornamental granitic tiles from the fine granite obtained in the process of other operations, and here again, as we have pointed out more than once, the secret of prosperity seems to lie in the use of waste products. Tiles were long ago to be made from this fine granite, but the problem has all along been to avoid

THE TROUBLESOME EFFLORESCENCE that was so fatal an impediment in the process. This has now been overcome by means of a German method, the patent rights of which have been secured by the Threlkeld Granite Company, who are now making at these works granitic tiles of the most varied designs and colors, without any of the erewhile troublesome efflorescence. The first item in point of nearness to the station is the great shed in which the flags of artificial stone (granite-concrete) are made, and it is interesting to note that in this shed, which is just 2000 yards in area, there are made 2000 super yards of the slabs every week. These slabs go to many of the greater towns and cities in the country as pavement for the footways, and the company is always unable to keep up with the demand for them, so popular are they amongst the public bodies in the country generally, especially in Yorkshire, even though the county has no small supply of stone of its own. Bradford and Leeds are flagged with these

Threlkeld slabs, as well as many smaller places. The fact of the supply being behind the demand seems strange, in view of the fact that a stock of these flags is always to be seen at the staging of the quarry, ready, apparently, for loading in the trucks that the railway company takes care to keep ready for the work, but the fact is that they are kept three months to mature before they are sent away, and the stacks seen are stacks of maturing goods rather than of goods ready for despatch. The technical description of the granite is syenitic, but it will be helpful to the general reader to be told that it is of the same kind

AS CLEOPATRA'S NEEDLE,

and as impervious to every kind of atmospheric influence. No antiquated or clumsy methods are in use in this quarry. Thanks to the energy and ability of the engineer and manager, Mr. Bragg, the whole of the rock drills, as well as the engine in the ornamental tile shed, are driven by compressed air, and the works are lighted throughout by the electric light. Compressed air drills are to be seen, and also heard (of this there is no possible doubt whatever), preparing the boulders of granite for the introduction of the powder charges that rive them apart. I asked Mr. Bragg if they did not use other explosives, but he told me that they found powder the best, because it gave a better and more complete break-up than other or higher explosives. Dynamite, of course, with its tremendous down stroke, is out of the question, as it shatters the rock too much, rendering it useless for getting out blocks for setts, kerbing, &c. The Threlkeld granitic tiles, by the way, are now being laid at the new Whitehaven Post Office, and at a new conservatory at Lowther Castle for the Earl of Lonsdale. Indeed, if the tourist, with whom I started my observations, will devote a morning to this quarry, he will be wonderfully interested in watching the process by which one of the Cumberland mountains is being broken up and distributed over the country generally.

THE corner-stone of the Nottingham General Hospital Extension has been laid by the Duke of Portland.

ONE of the Local Government Board inspectors recently held an inquiry at the Town Hall, Colchester, as to the application of the Colchester Corporation for sanction to a loan of £500 for the improvement and widening of Maldon Road at its junction with Crouch Street.

A NEW locomotive engine, from the designs of Mr. W. Worsdell, has just been completed at the Gateshead works of the North-Eastern Railway Company. The engine is of the triple expansion type, and it may be noted in passing that this system of steam utilisation is likely to attain as high a popularity in locomotive engineering as it has already achieved in connection with marine work, the realisation of high speeds, without added waste of space or material, being equally desirable in both cases. The North-Eastern Company's new engine is much larger than the type of locomotive in general use, and, with its tender, will weigh about 80 tons. It is expected to take heavier trains at a much higher rate of speed than is possible of attainment with any of the present type of engines, and eighty miles an hour is talked of as within the scope of its capabilities.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
July 23	Ayr—Hospital Works .....	.....	A. Stevenson, 14, Cathcart-street, Ayr.
" 23	Bacup—Four Houses .....	.....	Mr. Wilson, Surveyor, Bacup.
" 23	Bowness—Additions to Premises .....	.....	E. Walker, Windermere.
" 23	Rumney—Additions to Schools	School Board	E. H. Bruton, 15, Queen-street, Cardiff.
" 23	Llangefni—House	Baptist Chapel Building Committee	Frondirion, Llangefni.
" 23	Barrow—Wing to Hospital .....	.....	Austin and Paley, Castle Hill, Lancaster.
" 23	Colne—Schools Library	Corporation	Woodhouse and Willoughby, 100, King-street, Manchester.
" 25	Altrincham—Additions to Hospital	Managers	J. M. Bancroft, Hale-road, Altrincham.
" 25	Bristol—Extension to Schools	School Board	F. B. Bond, Alliance Chambers, Corn-street, Bristol.
" 25	Brynsiencyn—Erection of Inn .....	.....	E. Davies, Bangor.
" 25	Crumlin—Additions to Schools	School Board	Rosser and Roberts, Abercarn.
" 25	Holbeck—Rebuild Inn	Leeds and Batley Breweries Ltd.	T. Winn, 92, Albion-street, Leeds.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
July 25	Llanstadwell—Chapel	Lunatic Asylums Committee	J. Griffiths, Llanstadwell.
" 25	Stone—Erection of Workshops	New Town Urban District Council	J. R. Thomas, County Hall, Aylesbury.
" 25	Swindon—Workshops	Admiralty	H. J. Hamp, Public Offices, Swindon.
" 26	Brightlingsea—Coastguard Buildings	County Borough	Director of Works, Northumberland-avenue, W.C.
" 26	West Ham—Twenty-nine Houses	Lumbly, Son, and Wood	L. Angel, Town Hall, Stratford, E.
" 26	Halifax—Workshops, &c.	Lancashire and Yorkshire Railway Co.	Horsfall and Son, 22a, Commercial-street, Halifax.
" 26	Accrington—Bridge Works, &c.	Midland Brewery Company	Engineer's Office, Hunts Bank, Manchester.
" 26	Loughborough—Hotel	West Ham Town Council	Barrowcliff and Alcock, Mill-street, Loughborough.
" 26	Plaistow—Twenty-nine Houses	Guardians Chorlton Union	L. Ansell, Town Hall, Stratford, E.
" 26	Willington—Alterations to Schools	Corporation	J. B. Broadbent, 15, Cooper-street, Manchester.
" 27	West Hartlepool—Electric Light Station	Sewage Committee	J. W. Brown, Borough Engineer, West Hartlepool.
" 28	Bury—House	Corporation	J. Cartwright, City-chambers, Cochrane-street, Glasgow.
" 28	Glasgow—Stable Offices, &c.	Metropolitan Asylums Board	City Engineer, City-chambers, Cochrane-street, Glasgow.
" 28	London, E.C.—Office Buildings	School Board	E. T. Hall, 57, Moorgate-street, E.C.
Aug. 1	South Uist—Class Room	Urban District Council	A. McElfrish, Lochmaddy.
" 3	Hampton Wick—Office Repairs, &c.	Vestry	J. Nixon Horsfield, Surveyor, Hampton Wick.
" 3	Shoreditch—Underground Conveniences	Guardians	J. E. Dixon, Town Hall, Old-street, E.C.
" 3	Ulverston—Lodge, &c.	School Board	J. W. Grundy and Son, Ulverston.
" 3	Maxey—Additions to School	Guardians	J. G. Strallevass, North-street, Peterborough.
" 4	Stoke Damerel—Additions to Infirmary	Guardians	H. G. Luff, 64, Chapel-street, Devonport.
" 5	Nottingham—Workhouse, &c.	Committee	A. Marshall, King-street, Nottingham.
" 6	Staple Hill—Police Station	School Board	M. H. Medland, 15, Clarence-street, Glasgow.
Sept. 19	Swansea—Board School	Henry Calver	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
No date.	Brantree—House, &c.	Odd Fellows Society	H. Calver, Brantree.
"	Chepstow—Seven Cottages	Osmond Barnard	J. P. Consterdine, 30, High-street, Chepstow.
"	Dunmow—Stables, &c.		J. W. Clark, Coggeshall.
"	Horwich—Chimney		E. W. Dyson, 17, Lee-lane, Horwich.
"	Loxley—Chapel		H. W. Lockwood, Palatine-chambers, Pinstone-st., Sheffield.
"	Stanley—Two Houses, &c.	W. Smurthwaite	W. Foster, 1, Clifford-road, Stanley.
"	Stockton—Addition to Schools	School Board	A. Harrison, 99, High-street, Stockton.
"	Wann-Llwydd—Hotel	J. B. Yendoll	Swalwell & Creighton, Steam Packet Chambers, Newport.
"	Woodhouse—Eight Scullery Houses		T. Fletcher, 58, Melville-place, Woodhouse.
"	Wigan—Shops, &c.	A. Peck	Bradshaw and Goss, 19, Silverwell-street, Bolton.
"	Ushaw Moor—Schools	Pease and Partners	Clark and Moscrop, Feetthams, Darlington.
"	Bolton—Eight Shops, &c.	Corporation	Bradshaw and Goss, 19, Silverwell-street, Bolton.
"	Belfast—Six Houses		J. V. Brennan, 21, Waring-street, Belfast.
"	Plymouth—Church Tower		G. H. F. Prynn, 6, Queen Anne's-gate, S.W.
"	Hull—Church		Smith and Co., 77, Lowgate, Hull.
"	Cardonald—Schools	School Board	Kerr and Watson, Johnstone, N.B.
ENGINEERING—			
July 25	Eastbourne—Culverting	Drainage Committee	R. M. Gloyne, Town Hall, Eastbourne.
" 25	Manchester—Boilers, &c.	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 25	Manchester—Supply Engines and Laundry Machinery	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 25	Nuneaton—Filter Beds, Tanks, &c.	Urban District Council	J. S. Pickering, Council Offices, Nuneaton.
" 26	Woking—Supply Fire Engine, &c.	Urban District Council	G. J. Woodbridge, Bank-chambers, Woking.
" 26	Bucklow—Sewerage Works	Rural District Council	J. M'Kenzie, 7, Market-street, Altrincham.
" 26	Blaenpenal—Reservoir	W. C. Brigstocke	E. George, Bailey Farm, Blaenpenal.
" 27	Salford—Tank		Borough Engineer, Salford.
" 28	Uxbridge—Filtration Tanks, &c.	Rural District Council	Surveyor, 24, Windsor-street, Uxbridge.
" 30	Leyland—Outfall and Filtration Works	Urban District Council	J. Westley, Leyland.
" 29	Coventry—Pumping Station	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
Aug. 1	Athy—Water Supply	Guardians	Dr. J. Kirilbridge, Athy, Ireland.
" 1	Cairo—Bridge		Inspector of Irrigation, Second Circle, Cairo.
" 1	Haddington—Bridge	Commissioners	Belfrage and Cairnes, 1, Erskine-place, Edinburgh.
No date.	High Harrington—Pip-laying		A. Kendall, High Harrington.
"	Methley—Pit-sinking		J. Parkin, Foxholes Collieries, Methley, Leeds.
IRON AND STEEL—			
July 26	Hull—Supply Cast Iron Pipes	Waterworks Committee	E. J. Bancroft, Town Hall, Hull.
" 26	Keighley—Supply of Pipes	Gas Committee	J. Laycock, Gas Offices, Keighley.
" 27	Aberdare—Ironwork	Urban District Council	W. Fox, 5, Victoria-street, Westminster, S.W.
Aug. 2	Ottawa, Canada—Supply of Steel Rails		L. H. Jones, Dept. of Railways & Canals, Ottawa, Canada.
" 23	Coolgardie, Australia—Steel Pipes	Government of Western Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
ROADS—			
July 26	Haywards Heath—Supply Granite	Urban District Council	E. Waugh, Haywards Heath.
" 26	London, N.—Kerbing, &c.	Edmonton Urban District Council	G. E. Eachus, Town Hall, Lower Edmonton.
" 25	Rawtenstall—Street Works	Corporation	A. W. Lawson, Rawtenstall.
" 26	Southampton—Street Works	Corporation	W. B. G. Bennett, Borough Engineer, Southampton.
" 26	West Ham—Streets	County Borough	L. Angell, Town Hall, Stratford, E.
" 26	Willesden—Road Making	District Council	C. C. Robson, Dyne-road, Kilburn.
" 28	Tunbridge Wells—Road Works	Corporation	Borough Surveyor, Town Hall, Tunbridge Wells.
" 28	Tunbridge Wells—Supply Quartzite	Corporation	Town Clerk, Town Hall, Tunbridge Wells.
" 30	Usk—Tar Paving	Urban District Council	T. Ellis, Jun., Usk.
Aug. 2	Mansfield—Road Works	Corporation	F. Vallance, White Heart-chambers, Mansfield.
No date.	Chesterfield—Streets, Sewers, &c.		W. M. Ashmore, New Queen-street, Chesterfield.
Aug. 2	Wenbley—Street Works	Urban District Council	C. L. Whitshead, Wembley.
" 3	Hampton Wick—Tar Paving	Urban District Council	J. N. Horsfield, Hampton Wick.
No date.	Audenshaw—Paving, &c.	District Council	J. H. Burton, 2, Guide-lane, Hooley Hill, Audenshaw.
"	Bristol—Road and Sewers		J. P. Sturge and Sons, 33, Corn-street, Bristol.
SANITARY—			
July 23	Eastbourne—Drain Work	Sanitary Committee	R. M. Gloyne, Town Hall, Eastbourne.
" 23	Midhurst—Disinfectants	Rural District Council	E. Albery, District Council Office, Midhurst.
" 26	Thornhill—Sewers, &c.	Urban District Council	S. W. Parker, Council Offices, Thornhill.
" 26	West Ham—Sewers, &c.	Town Council	L. Angell, Town Hall, Stratford, E.
" 26	Bucklow—Sewage Works	Rural District Council	J. M'Kenzie, 7, Market-street, Altrincham.
PAINTING AND PLUMBING—			
July 23	Bingley—Whitewashing Schools, &c.	School Board	B. Hartley, Bingley.
" 25	Hastings—Painting, &c.	School Board	Clerk, School Board Offices, Hastings.
" 25	Rawtenstall—Painting, &c.	School Board	School Board Offices, Cloughfold.
" 26	Whittingham—Painting Asylum	Asylum Committee	Whittingham.
No date.	Bigin—Whitewashing Board School	School Board	J. C. Rhodes, Sherburn-in-Elmet.
"	Bradford—Painting		B. L. Laycock, Bradford.
"	Melton Mowbray—Painting	Directors, Corn Exchange	E. Jewes, Melton Mowbray.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
July 27	West Hartlepool—Refuse Destructor		J. W. Brown, Borough Engineer, West Hartlepool.
" 27	Wivenhoe—Water Supply Scheme		Urban District Council.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
" 16	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 31	Glasgow—City Improvements	£100, £50, £25	Glasgow Corporation.
No date.	Rotherham—Extension to Schoolroom	£600	A. Crowcroft, Clifton-crescent South, Rotherham.

Property and Land Sales.

HAMPTON AND SONS,
ESTATE AGENTS, AUCTIONEERS, AND VALUERS.

1898.

HAMPTON AND SONS beg to announce that their AUCTIONS of LANDED ESTATES, Town and Country Residences, Investments, Business Premises, and other Properties are held MONTHLY, at the Mart, Tokenhouse-yard, E.C.

Auctions can also be held on other days in town or country by arrangement; also Sales and Valuations of Furniture, Pictures, Farming Stock, Timber, &c.

July List of Estates, Town and Country Residences, Hunting Boxes, and Sporting Properties can be had gratis on application to **HAMPTON AND SONS (Ltd.)**, 1, Cockspur-street, S.W., or by post, three stamps. Auction and Estate Offices, 1, Cockspur-street, Pall-mall, S.W.

Sale of the outlying portions of the Sussex Estate of Sir James Duke, Bart.

Valuable small sporting properties, numerous farms, several of which are well wooded and provide excellent sites on high ground, suitable for the erection of gentlemen's residences. Rich marshes, woodland, accommodation holdings, cottages, &c., extending to about 3000 acres, and lying in the parishes of East Hothly, Framfield, Hailsham, Bexhill, Chiddingly, Arlington, Hellingly, Hurstmonceux, and Hove, within driving distance of Eastbourne and Lewes. The various properties are let to substantial tenants and will be offered in numerous lots, providing a rare opportunity for acquiring sound landed investments, and choice positions for forming small residential estates in this favourite part of Sussex.

HAMPTON AND SONS will SELL by AUCTION, at an EARLY DATE (unless previously sold by private treaty), the above valuable ESTATE in numerous lots.

Full particulars, with plans, of the Vendors' Solicitors, Messrs. PONTIFEX, HEWITT, and PITT, 16, St. Andrew-street, Holborn-circus, E.C.; of Messrs. DRAWBRIDGE and ANSELL, Land Agents, Haywards Heath, Sussex; and of the Auctioneers, **HAMPTON AND SONS**, 1, Cockspur-street, London, S.W.

FINCHLEY-ROAD.

Occupying a pleasant position in this favourite residential locality. For SALE, the conveniently placed, Double-fronted, Detached FAMILY RESIDENCE and STABLING, known as Bishop's Lodge, 35, Finchley-road, N.W., substantially built, and standing well back from the road, approached by a carriage sweep; held for 39 years unexpired from Michaelmas next, at a ground rent of £20 per annum; possession on completion of the purchase; also the well-placed and attractive Semi-detached HOUSE, No. 5, Finchley-road, N.W., containing six bed rooms, bath room, three reception rooms, conservatory, and usual domestic offices, let upon a five years' lease from September, 1897, at £90 per annum, thus forming a good investment; held on lease having an unexpired term of about 23 years, at a ground-rent of £11 per annum.—Agents, **HAMPTON AND SONS**, 1, Cockspur-street, S.W.

HAMPSTEAD, situate on high ground, towards the Heath, commanding extensive views within a few minutes' walk of Hampstead Heath station, and an easy drive of the City and West End.—To be SOLD the Valuable FREEHOLD RESIDENTIAL PROPERTY known as Rookwood, Green Hill, Hampstead, comprising a substantially-built, medium-sized residence, standing well back from the road, surrounded by its own charming grounds, with lawn, flower beds, and containing some beautiful old trees, lodge at entrance, and excellent detached stabling, the whole extending to about an acre.—Detailed particulars of the Agents, **HAMPTON AND SONS**, 1, Cockspur-street, S.W.

OFFICES: 1, COCKSPUR-STREET, S.W.

Longbridge-road Estate, Barking.

Remaining Portion, at low reserves, to close the Estate.

MR. JOHN H. BETHELL will SELL by AUCTION, at the PUBLIC OFFICES, East-street, Barking, on THURSDAY, JULY 28th, 1898, at 7.30 o'clock in the evening precisely, 115 lots of valuable FREEHOLD BUILDING LAND, including ten shop plots, with frontages to Longbridge-road, Fanshawe-avenue, and Montague-avenue. Possession on payment of a deposit of 10 per cent., balance payable in five years. Free conveyances. The land is free title and land tax. The estate is situate in a good position, adjoining the Public Recreation Ground and Barking Railway Station, from whence there is a good service of trains to the City. The roads are made, sewered, and kerbed, and the subsoil is a deep bed of gravel. There is a large demand for houses, which let and sell very readily.

Particulars, plans, and conditions of sale to be obtained of Messrs. SAVERY and STEVENS, Solicitors, 2, Brabant-court, Philpot-lane, E.C.; or the AUCTIONEER, 31, Liverpool-street, E.C., and Estate Offices, Upton Park, E.

Unusual opportunity of acquiring a high-class Marine Freehold Residence at Bognor-on-Sea.—Purchasers need only pay a deposit of 10 per cent., the balance by half-yearly instalments extending over nine years.—The imposing House, No. 2, Park-terrace, in an exceedingly pleasant position on the esplanade, facing the sea. It contains eight airy bedrooms, four spacious reception rooms, and ample domestic offices. Suitable for a high-class boarding house. Also Freehold Houses, 3 and 4, Lansdown-place; let at £65 and £70.

MR. GEORGE F. HARRINGTON will SELL the above by AUCTION, at the MART, London, E.C., on JULY 26th, at TWO, in three lots.

Particulars of W. J. MYATT, Esq., Solicitor, 23, Abchurch-lane; and of the AUCTIONEER, 16, Abchurch-lane, E.C.

Postponement of Sale.—By order of the Secretary of State for War.—The old Militia Barracks, Bethnal Green.—Leasehold.—Extensive modern Premises, having a frontage of about 75ft. to Globe-street, running through to, and including No. 21, Victoria Park-square, with frontage of 34ft. or thereabouts, area about 20,500 sq.-ft. With possession.—Messrs.

FAREBROTHER, ELLIS, EGERTON, BREACH, GALSWORTHY, AND CO. beg to announce that the SALE of the above valuable PROPERTY is POSTPONED until the autumn season.—29, Fleet-street, Temple-bar, and 18, Old Broad-street, E.C.

Auction Sales, 1898.

MR. GEORGE BRINSLEY will hold his Monthly AUCTION SALES, at the MART, Tokenhouse-yard, E.C., for the year 1898 on the following days:—

Wednesday, July 20.

Wednesday, Aug. 24.

Wednesday, Sept. 21.

Wednesday, Oct. 19.

Wednesday, Nov. 16.

Wednesday, Dec. 14.

Landed Estates, Town and Suburban Houses, Building Land, Ground Rents, Business Premises, Reversions, Shares, and other Properties for absolute Sale, will be included in these sales on reasonable terms, which can be fixed beforehand if so desired.

Auction and Survey Offices, 30 and 31, New Bridge-street, Ludgate-circus, London, E.C. Established 1852. Telephone Number, 661, Bank. Telegrams, Bridging, London.

George-lane, South Woodford.—The Grove Lodge Estate, only a few yards from George-lane Station, and 18 minutes from Liverpool-street.—Second portion of this exceptionally ripe Freehold Building Estate, particularly suitable for good villa residences, which are so difficult to obtain in this favourite district. Immediate possession for building on payment of deposit; balance payable by instalments. Free conveyances.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the GEORGE HOTEL, High-road, South Woodford (opposite the estate), on WEDNESDAY EVENING, JULY 27th, at 7.30 o'clock, 34 plots of valuable FREEHOLD BUILDING LAND (title and land-tax free), possessing important frontages to Waverley and Eastwood-roads, George-lane, South Woodford, and comprising unquestionably some of the choicest sites now obtainable in this neighbourhood.

Particulars and plans may be had at the place of sale; of W. S. WITHERINGTON, Esq., Surveyor, 33, Great Tower-street, E.C.; Messrs. JENNINGS, SON, and ALLEN, Solicitors, 69, Leadenhall-street, E.C.; and of the AUCTIONEERS and LAND AGENTS, 67 and 68, Cheapside, London, E.C., and High-road, Leytonstone.

MESSRS. GREEN and SON,

AUCTIONEERS and SURVEYORS,

28 and 29, St. Swithin's-lane, London. Beg to announce that their SALES by AUCTION of FREEHOLD, LEASEHOLD, and COPYHOLD PROPERTIES, Ground Rents, Life Policies, and Reversions take place at the MART on the LAST FRIDAY in the MONTH, and on such other occasions as may be arranged.—Particulars are invited 21 days prior.

MESSRS. GREEN and SON undertake SURVEYS and VALUATIONS of LAND and HOUSE PROPERTIES, as well as Machinery and Plant, for

Ratings, Compensations, Partnerships, Assessment Appeals, Estate Duties, Dilapidations, Fire Losses, Mortgages, and other purposes. Estates managed and rents collected under Receiver-ship and other powers.

FREEHOLD BUILDING LAND.—TO BE

SOLD, a valuable BUILDING SITE, with extensive frontage to Lordship-lane, East Dulwich, and having an area of over 45,000ft. super. Suitable for the erection of a school or public building. Price £2000. Also several smaller plots, prices £140 to £600.—Plans and particulars of Mr. A. R. VIZARD, 12, Regent-street, Pall-mall, S.W.

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R. I. B. A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

ARCHITECTURAL INSTITUTE and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence, personally or in residence. Fourteen first places.—G. A. T. MIDDLETON, 19, Craven-street, Strand, W.C.

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The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

COSTING CLERK REQUIRED, accustomed to Builder's or Engineer's office. Must be quick at figures. One with a knowledge of architectural drawing preferred.—Address, stating age, salary expected, with copies of testimonials, to Box 774, BUILDERS' JOURNAL Office.

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An Architectural Causerie.

Verbum Sat
Sapiendi.

THERE is a certain well-worn metaphor, which is used somewhere

in one of Stevenson's early essays, and carries a flavour of having been born in the pages of the late Dr. Smiles, to the effect that opinions are but milestones on the road to knowledge. From this one has computed the road to knowledge to be, at best, an unconscionable long one; but, when one considers the number of opinions one has successively embraced and discarded, it becomes clear that one must, in reason, be now very nearly *there*. This flattering hope stimulates one to set down the very latest of one's new-found opinions without reserve, and with considerable confidence and satisfaction. One is convinced then that there is great future for the architectural model, and, in particular, a brilliant future for those young, enthusiastic architects who shall first avail themselves of the full possibilities and uses of the architectural model—to those, in short, who are in the van of this new development in the Profession. One says "Profession" (not Art) advisedly. The architectural model has, no doubt, certain functions in assisting the architect to refined and well-proportioned design, but these functions are few, and the advantages of the model are scarcely commensurate with the expense and labour entailed in its manufacture, for a capable architect could judge more truly the effect of his building from plan, section, and elevation, than from a model, unless such model were minutely and accurately finished. Indeed, the only real use to the architect of a model would be to help him to a study of the skyline, and the grouping of the parts from various points of view; a consideration which would apply only to a certain few buildings of monumental character. Many, however, would not hold their design assisted, or their confidence assured, by the preparation of a model. No; the value of the architectural model applies, as has been said, not to the artistic, but to the professional phases of Architecture, and the point of view is well expressed in an aphorism lately spoken by one's predominant partner. It was a disgraceful thing for an architect to express, but it is intensely and wonderfully true, and as it will annoy him to read it here, one will write it in:—"Art be bothered, I want a client." Herein, then, lie the great possibilities of the architectural model—to catch clients withal. It rests entirely with architects whether, at next year's Royal Academy Exhibition, the year's output shall find public consideration only in the heavy wandering eyes of the faint and tired ladies who go to the architectural room to rest in the empty seats, or whether the Profession is represented by work which shall form one of the chief centres of attraction, where the voices of possible clients and their daughters may be heard at any time throughout the exhibition exclaiming delightedly, "Oh, how sweetly pretty,"

"What a *dear* little house." "Who's the artist that did it?" and similar hope-inspiring expressions. To secure this end the architect must no more draw his designs but model them, or procure models to be made. This sounds a costly and troublesome proceeding, but it is not without advantages. For instance, it would not be necessary—indeed it would be futile and ridiculous—to design a building in plan and section. One's idea is that these models should be simply fancy designs, and as they would be governed by none of the rude necessities which handicap an architect in planning an actual building, they should be very fancy indeed; they should have no plans, but be pure idealised Architecture. If a client came and said, "build me a house like that," well, of

upper windows, as has been so well conceived to give "fuss" to a perspective drawing. Of course the doors and windows would open—or some of them—it would be irresistible; and shall one say a scrap of black cotton wool in each chimney pot? Well, well; that must be for each individual artist to decide, but one would certainly warn the architect against wooden smoke, which fails when seen edge on. In all seriousness, one has no manner of doubt that if a young man of reasonable ability used his discretion in thus bringing his designs before the public in a form which it can appreciate and understand, he would soon get him clients galore. There are quantities of people who are ready to buy whatever pleases them, and would as readily



CEILING OF QUEEN ANNE'S DRAWING ROOM. BY VERRIO.

(Re-published from Law's "The Royal Gallery of Hampton Court.")

course that client would not get a house like it, but one sees no cause for uneasiness in this, as even under the present orderings of the Profession, it yet remains to be seen that a client ever has got quite what he wanted. One would suggest that the models should be to so small a scale as might be consistent with moderate cheapness so as to fascinate the beholder as a trinket or a little mechanical toy does. The models should be coloured in highly concentrated tints, and duly finished with a realistic setting. One would almost venture as far as a chair on the verandah. Anyhow, there would be smooth green lawns of billiard cloth and flower beds, and the architect might put in a great deal with clipped yew hedges, and cloths and ivy geraniums frothing and tumbling out of the

purchase, say, a cottage for the estate, or a boat-house for the lake, if it delighted them, as they would a hat. One recalls that there is in a model always a certain fascination and a seductive charm, which is difficult to analyse or explain, but which, to the superficial observer at least, decks the object with apparent attractions which are lacking in the reality. One quite expects to see these hints acted upon, and next year, or maybe the year after, the Profession will crowd to Burlington House to see Mr. Voysey and Mr. Briggs side by side in rivalry with bungalows, Mr. Mountford and Mr. Hare in opposition with the wide frontages of rival town halls, and Mr. Aston Webb and Mr. Ernest George vieing with each other in something very sweet and tasty. B. C.

**Building for
the Nation.**

THE Government has taken another step in regard to the new public offices—it has selected the architects who are to give form to, and clothe Sir John Taylor's schemes of internal arrangement of the new War Offices to be built on the Carrington-house site in Whitehall and the combined offices to be built on the Parliament Street site. The selections have very generally been accepted as happy and appropriate; the London daily Press without exception has given Mr. Young and Mr. Brydon hearty hand-shakes, and has delivered itself of the fervent hope that their selection will culminate in buildings which shall at once further revive the fading glories of Architecture, and be a joy for ever to the multitudes who love their London, and who have æsthetic perception enough to care for the beautification and glorification of its great thoroughfares. The whole nation—that is the whole part of the small section of the nation which really cares one whit about the subject—will re-echo this wish, and the Profession in particular will take it up with an ardour borne of a wearying desire for some distinctive Architecture which shall serve in some measure to mark the later Victorian Era. Members of the Profession are by no means universally agreed, however, that the selection of the men in whose hands the making of this Architecture now rests, is the wisest. Against Mr. Brydon and Mr. Young other names are quoted; but surely it would be an unparalleled example of the uniformity of men's minds if this were not so. Had we asked our readers to speculate on the probable chances of success of a dozen or so architects for this Government appointment, we do not think Messrs. Young and Brydon would have been hot favourites, yet so far from quarrelling with their selection, we commend it heartily. The Government, we believe, has given much thought to the matter; it wisely sought the best professional advice obtainable—that of the Royal Institute of British Architects—and the committee of the Cabinet who had the question in hand considered at great length the special qualifications of each of the eight candidates for the particular work required—buildings classical in character and design, and built exclusively of Portland stone. In this regard both Mr. Brydon and Mr. Young are capable of good work, and the disadvantages underlying the fact that they are not well known to the London public are, as the Times remarks, questionable. Mr. Young's work at Glasgow, and his completion of Lord Wemyss's beautiful house at Gosford, near Edinburgh, have been greatly admired; but even amid the chorus of praise the voice of the detractor is raised. But then we must remember there are captious critics in every path of life. Mr. Brydon has just erected some notable municipal buildings at Bath, and he has a high reputation for originality and knowledge. So much for the architects. By the end of the year, or very soon afterwards, the sites—two of the most costly in London—ought to be cleared, and the architects be in readiness to commence the work. Let us hope that within a few years London will be enriched by two notably good public buildings.

H. C.

A NEW Congregational school-church has been opened at Preston.

The foundation-stone has been laid of a memorial school at Marykirk, Dundee.

The Berlin City Council has decided to construct an underground railway after the fashion of the one at Buda-Pesth, the London system being unanimously declined.

THE TEMPLES OF PHILÆ.

ABOUT five years ago, writes Lieut.-Col. G. T. Plunkett in the London Review, a thrill of indignation ran through the civilised world when it was announced that, in order to form a great storage reservoir on the Nile for irrigation purposes, it was proposed to submerge the celebrated island of Philæ, with its unique collection of temples and archaeological treasures. The result of an angry protest from lovers of Art and antiquity, and from scholars of every civilised nation, was that the plans were altered, and it was announced that two reservoirs would be made in place of one, and that the dam at Philæ would be made lower than originally schemed, so that the water could never reach the surface of the island. It appears, however, that the water, according to the plans now approved, will still be high enough

TO DESTROY THE TEMPLES

in a few years. Dr. Borchardt has shown, in a paper read by him before the Royal Prussian Academy on April 28th, 1898, that where Egyptian buildings are surrounded with the debris of human dwellings, if moisture is allowed to percolate to them, it dissolves the salts out of the rubbish, and carries them into the sandstone which it percolates; on drying again, the salts, in crystallising, crumble away the face of the stone, and rapid disintegration is caused, as has been seen in the ruins of Thebes and at other places. Dr. Borchardt seems to establish beyond question the fact that the top of the dam must be kept six metres lower than is at present proposed, or the work of destruction will only be postponed for a few years.

THE ORIGINAL PLAN

would have overwhelmed the island with the Nile waters, and the group of temples in their setting of palm trees, which have for centuries enchanted every traveller who has passed the First Cataract, would have disappeared from view for ever. How shall we have gained if, instead of this dramatic close to their history, they are to be sapped year by year at their foundations by water impregnated with the offal through which it percolates, until these glorious monuments become a heap of unsightly ruins? It cannot be pretended that no alternative plan is feasible. The whole Nile Valley, from the junction of the two great streams at Khartoum to the sea, will soon be under Egyptian control; from the Atbara it is so already, and it can only be at the most

A QUESTION OF MAKING THREE

instead of two reservoirs to store an equal quantity of water for purposes of irrigation. If the expense would be somewhat greater, we may set against this the large sums of money spent in Egypt annually by travellers who prolong their stay in the country, and journey to Aswan in order to visit a spot on which Nature and Art have lavished gifts that make it attractive to every sightseer, whilst to the archaeologist it is as sacred as the Parthenon or the Colosseum. As the voice of civilised Europe has already once prevailed, so that instead of one vast lake it has been decided to make two of less depth, it is to be hoped that it will be heard again with no uncertain sound, and insist on such further modifications as will ensure against destruction by the works of man of these supremely interesting relics, which time itself has so long spared, and the forces of Nature alone will not destroy for countless centuries to come.

THE LEIGHTON HOUSE.

IT will be a sad and strange experience for many Londoners when they pass into "The Leighton House," as it is now called, to miss the kindly host who did the honours of it so well, and the stream of guests he used to welcome so cordially on those Sunday-at-Homes in the early months of the year while his Academy works were being planned and carried through with such loving completeness. The house itself, says the Daily News, was for its owner as much a study and a labour of love as any of the works conceived and slowly built up under its roof. As you pass into the inner hall the bronzed cast of Mr. Brock's fine portrait bust is the first personal relic which meets the vision. It stands where the painter so often stood to meet his friends, and at its base is a wreath of bay leaves, the Daphne which he loved so to introduce into his picture, and which he drew with such finesse and accomplishment. To the left of you is

THE ARAB HALL,

of which Leighton was so fond and proud. As you left the studio above he would always beg of you to pass into it on your way to the hall. He and his friend, Mr. Purdon Clark, were one autumn travelling in the East, and arrived at some town where a mosque had just been pulled down, and all its appurtenances, including its tiles, were being dispersed. The chance was a great one for an artist, and especially for an artist who was also a colourist. Leighton bought largely—the carriage home was more trouble than the actual purchase—and the Arab Hall was the outcome of that special journey to the East. Across the darkened vestibule you see the domed hall, with its studied and effective lighting, its cool splashing fountain, its windows jewelled

WITH OLD DAMASCUS GLASS,

its Cairene woodwork, old too, and of exceptional beauty, and its tiles of rich and passionate colour. The Moorish capitals of the columns were carved in polished marble by his friend Boehm; the frieze that runs between them was designed by Walter Crane; the Arabic characters in the architrave over the approach were once the salutation that met the worshipper as he entered the old mosque. It is a building to study and to linger in, and perhaps its great triumph as a piece of design and Architecture is that it impresses you less in detail than in its harmonious completeness. As the Arab Hall was an adjunct to the house, so, but a few years before its owner's death, the top light or

GLASS STUDIO

became for the painter a necessity. In this room, which was a work room, and not always opened on his "At Home" days, are now shown some of the most interesting studies in the whole collection. These are copies which young Leighton made from Memmi's frescoes in the Spanish Chapel of Ste. Marie Novella, when he was staying at Florence in 1853. Here we may see Taddeo Gaddi in white and gold cap, Giotto, gold and sea green, Cimabue, gold flowers on white ground. The criticism on these copies in the admirably written preface to the catalogue should be read carefully. It may be said generally of the drawings here exhibited that with those who only knew Leighton from his finished works, they will increase an already splendid reputation; for even the slightest of these works exhibits that incommunicable gift of style which is the hallmark of genius and only belongs to the great artist of all schools and all periods.

HAMPTON COURT.*

THE ROYAL GALLERY ILLUSTRATED.

BY ERNEST LAW, B.A.

VISITORS to Hampton Court Palace must be well acquainted with Mr. Law's name, inasmuch as the popular catalogue and guide sold at the bookstalls is from his pen, being an abstract of his larger books, "A History of Hampton Court," and "A Historical Catalogue of the Pictures in Hampton Court Palace," published in 1881. The book which we notice to-day is a new edition of the latter.

This new edition, which is much altered and augmented, is a very complete and careful catalogue of the Royal Gallery at Hampton Court, with many critical and historical notes, and also contains excellent reproductions of a number of pictures which are of special interest for one reason and another. It is a misfortune that in a work of this sort equal attention has to be paid to every picture in the collection, for while there are some masterpieces to be seen there, and many paintings which are interesting for one reason and another, the bulk of the contents of the gallery consists of works of the later Dutch schools and of copies, or pictures of very doubtful authenticity, which are neither the one nor the other. And in most cases the backgrounds are very dark,

* "The Royal Gallery of Hampton Court (illustrated), being an historical catalogue of the pictures in the Queen's collection at that Palace, with descriptive, biographical, and critical notes, revised, enlarged, and illustrated with a hundred plates." By Ernest Law, B.A. London: G. Bell and Sons, 1898.

and, therefore, the pictures do not decorate the rooms in the way in which even inferior works conceived from a decorative standpoint would do, giving a general impression of richness and disposing the judgment to view leniently any shortcomings in manipulation. At Hampton Court the effect is sombre and not rich, and the pictures have, therefore, to stand entirely on their own merits. Some of them, uninteresting in themselves, appeal to the collector's feeling by their rarity, but the ordinary educated spectator will often feel that it is a pity that they are not rarer still—yet the labour of searching for details about these is just as great as that about others much better worth notice, and one is disposed to condole with the author on the immense amount of uninteresting labour through which he must have gone to produce so complete and interesting a catalogue.

Among the Italian pictures, especially, are many of very doubtful origin. For instance, Giacompo Bassano is credited with twenty, of which no less than eleven are doubtful, though this is the worst case. As might be expected from the time at which the collection was formed, the larger number of pictures, of whatever school, is very late in date, and shows the taste of the period to disadvantage.

Mr. Law writes with the enthusiasm of a man who has devoted great care and much time to his subject, but most connoisseurs would agree that the fine pictures are like a few grains of wheat among handfuls of chaff, though a gallery which contains Andrea Mantegna's magnificent "Triumph of Julius Caesar," deplorably repainted and damaged though it is, is worthy of many visits. The attention of the visitor should be particularly directed to the early historical pictures, such as "The Meeting of Henry VIII. and Maximilian I." No. 331, "The Embarkation of Henry VIII. from Dover on his way to the

Field of the Cloth of Gold," and "The Meeting of Henry VIII. and Francis I." there, Nos. 337 and 342; and No. 339, "The Battle of the Spurs," which are full of most interesting details of costume, of shipping, arms, and armour. They have, of course, been ascribed to Holbein, but without consideration, the ancient catalogues attaching no name to them, and are probably contemporary works of journeyman painters attached to the Court. The strength of the collection lies in portraits, or in ideal pictures of the nature of portraits, heads and single figures, or half-lengths. Many of these are Italian, a few German or Dutch, and a considerable number, not the best, English. It is curious that there is no example of either Reynolds or Romney.

Mr. Law's book is rather large for a guide-book, but one might do worse than take it with one through the rooms—though the places of some of the pictures have been changed since it's passing through the press. It commences with an historical introduction, a sort of *resumé* of the fortunes of the gallery and of the artists whose works have gone to the making of it. There is a plan of the State apartments, and the rooms are treated seriatim, a description of the fabric preceding the list of the pictures and the historical and descriptive notes upon them in each case, and this part of the book is not the least interesting, as Mr. Law's eye has seen the things of all sorts worthy of notice, and his pen gives details about the construction and decoration of the rooms and the men who had to do with them. The production of the work has evidently been a labour of love—State papers and inventories have been searched for mention of pictures contained in the gallery—the books of the older critics have been studied as well as those of more recent date for any light which might be thrown upon the authorship of pictures or the personality of the subjects of portraits, and the opinions of experts have also been obtained. Copious indices accompany the text, whereby one may find with ease the works of painters, the persons painted by them, and the numbers of the pictures in the Royal inventory coupled with those of the present catalogue. An immensity of labour has been gone through, and the author may be congratulated on its successful issue. In the next edition it would be well to correct the little slip whereby the description of No. 939 remains the same as in the edition of 1881: "This picture has been recently restored and hung up within the last three months!" S. S. G.

Leaves from an Artist's Sketch Book.

BY EDWIN DOLBY.

RAILWAYS, improvements in building, drainage, etc., have made such changes in the character of the old towns of Europe of late years, that very little of the "picturesque" is left, and what there is will soon disappear. That enormous improvements have been made cannot be denied, and it is useless to indulge in sentimental regrets over the inevitable. At the same time much that was beautiful has vanished, and in many cases has been recklessly destroyed. To rescue some fragments of what once existed has been the object of the artist in presenting these sketches to the reader. Meanwhile those who wish to see any of the old cities as they formerly appeared must make haste. Old Rome is nearly gone; Venice is in a state of transition, and very shortly scarcely a vestige will be left anywhere for the sketch-book of the artist, or the speculations of the antiquary.

[Two of Mr. Dolby's drawings, which form part of a collection, are given in our inset pages to-day.—Ed. B.J.]

BRONDESURY, having decided to enlarge its fine parish church, Christ Church, the foundation stone of a new south transept and south aisle, which will be erected at a cost of £3000 from the designs of Mr. C. R. Baker King, was laid a few days ago by the Bishop of London.



CHARLES I. BY VANDYCK.

(Re-published from Law's "The Royal Gallery of Hampton Court.")

ARCHÆOLOGISTS AFIELD.

IN PETERBOROUGH AND DISTRICT.

THE British Archæological Congress was concluded last week. Peterborough and the neighbourhood was the *locale* this year. The first day afield was at Barnack, a distance from Peterborough of six or seven miles. Barnack Church absorbed attention. Its extreme interest from an architectural point of view lies in the wonderful example it gives of five distinct periods of Gothic Architecture, the Saxon, Norman, Early English, Decorative, and Perpendicular. It is interesting to note how natural is the transition from one stage to the other. There is no sharp line of demarcation—it is just a process of evolution and transition. The square tower is Saxon, but the octagonal spire is an Early English addition. The late vicar, when pulling down the ancient masonry with which the Early English spire designer blocked up the west arch, discovered that the foundations were laid on *débris* believed to have been caused by the

BURNING OF THE OLD SAXON CHURCH

by Sweyn—a fact recorded by Ingulphus in 1013. There is some little doubt as to the builder of this church. The most generally accepted version is that Wilfrith, an Archbishop or Bishop of York, was responsible for its erection, and this would bring the date out at about 670. Wilfrith's patron was Alfrith, Prince of Northumbria, who was connected with the district. The emblematical carvings on the tower—which are identical with known churches built by Wilfrith—strongly support the theory. SS. Peter, John the Evangelist, and John the Baptist, are the saints to

whom he usually dedicated, and these are typified in the sculptures of the cock, the eagle, and the dove. The outside walls of the church are Norman work, as is the arcade on the north side of the nave. There is also a Norman side chapel opening from the choir through

A FINE NORMAN ARCH.

There are traces of a causeway connecting the church with the Manor House close by, which from 1189 to the time of Henry VIII. was in the possession of the Abbots of Peterborough. The south arcade is in the Early English style, while the chancel belongs to the Decorative period. The east window is an almost unique example of crooked canopy work, a similar window existing in the chapel at Merton College, Oxford; and lastly, the Perpendicular style is represented by a chapel dedicated to Our Lady, separated from the choir by an arch, to which special attention was drawn. Up to the cap of the pillars the arch is constructed of Barnack stone, while above the caps the stone is foreign. Canon Syers thinks the explanation is that the quarries at Barnack had given out, which would give the date of the chapel as *temp.* Henry VII. The Congress proceeded from the church to the Manor House, where

RELICS OF A NORMAN HALL

were inspected. Then, after a brief inspection of the rectory and its beautiful gardens, the carriages were again brought round, and Wittering Church was next visited. Wittering is a less pretentious building than Barnack, but apparently as old. The arch of the nave is typically Saxon, strong and rude. From Wittering a move was made to Wansford. There are several remarkable features about the church. It is Saxon, and the tower is exceedingly old. The chancel has disappeared, and the building consists merely of nave and

a north arcade. Above the west end of the nave, abutting on the tower, has been constructed a gallery, very quaint in appearance, which is used for the choir. The drive was continued from Wansford to Castor, with its fine old Norman church. It is cruciform in shape, and dates primarily from the early twelfth century. The finest feature of the Norman work is the tower, which is of the richest possible style of the period. A hundred years later additions were made to the church. In 1220 Castor Church was added to, and some fine examples of Early English Architecture are contained within its walls. The pillars of the southern arcade in the south transept are absolutely the epitome of the finest possibilities of the Early English period. Leaving Castor the party drove to Milton Park, once a seat of the Earls Fitzwilliam, now occupied by Mr. Fitzwilliam. The fine pictures and curiosities in the house were examined with interest. Spalding was the rendezvous on the second day. The first expedition was to the Church of SS. Mary and Nicholas, which, from its known history and the completeness of its plan, is of considerable interest. The present church (leaving later restorations out of the question) was built in 1284, and it had its origin in a dispute between the prior and the parishioners of Spalding. The parishioners, it seems, annoyed the monks at their devotions by ringing the bell of the parish church at "unseasonable hours," so a contract was entered into, the parishioners on their part agreeing to pay £100, and the prior and monks on their part agreeing to build a church on the

SITE OF THE OLD CEMETERY.

And so, in 1284, the present Church of SS. Mary and Nicholas came into existence. Previous to this date there evidently was a chapel on the site, dedicated to St. Nicholas. This is known, and it is corroborated—if corroboration be needed—by the fact that one of the walls of the chancel is out of the square, having evidently been built on the foundations of the more ancient Norman chapel. The church was undoubtedly cruciform originally, with a chancel, transept, and nave. The transept had an east and west aisle, while the nave had a north and south aisle. There still remains a perfect specimen of the rood-loft, which is approached by a flight of circular stairs leading from the nave. The rood-screen dates from 1315, but it has been restored by Sir Gilbert Scott. He has, however, preserved the ancient form admirably, having based his

RESTORATION DESIGNS

upon drawings of the original screen, and the result is a harmonious and interesting whole. The church owes a good deal to one Sir Nicholas Aldwyn, whose insignia—that of a woolstapler—is in evidence, for he was a benefactor to no small extent. The chapel of St. Thomas à Beckett, which stands on the south of the chancel, was erected in 1315. The windows in this chapel have the distinction of being only equalled in Ely Cathedral. Otherwise they are unique. In 1360 the south transept and aisles were erected, the north porch—still standing, a monument in its entirety to his memory—being added, in 1495, by another scion of the Aldwyn family. Much of the shell of the original fabric has been removed in the process of restoration. Galleries once existed all round the church, but these have been mercifully removed.—Several places of historical interest in North Northamptonshire were visited to-day week. A drive was taken to Woodcroft Castle, a distance of seven or eight miles from Peterborough. Woodcroft Castle, which is in possession of Baron de Lussan, is a moated grange, and is celebrated from the fact that Royalists from Stamford retired there in the time of the Commonwealth and held the castle against the Ironsides for several days under the leadership of Sir Michael Hudson, a doctor of high repute at Court.—Maxey Church and Northborough Castle, a mile or two from Maxey, were also visited. The wife of Cromwell is buried in the crypt of the Castle, in which also are many skulls. The church, which almost immediately adjoins, is full of architectural beauty.



HEAD OF A MAN. BY DOSSO DOSSI.

(Re-published from Law's "The Royal Gallery of Hampton Court.")



MELLIFONT ABBEY: ENTRANCE TO CHAPTER HOUSE.

MELLIFONT ABBEY:

ITS HISTORY AND ARCHITECTURAL REMAINS.*

By ANTHONY SCOTT, M.S.A.

(Cor. Mem. Central Society of Architects,
Belgium).

(Continued from page 413.)

At the crossing of the nave and transepts are elaborately moulded piers, which evidently carried a lantern or a low one-story bell tower. These piers, it will be noticed, are comparatively small in size compared to the usual huge masses of mediæval piers in such positions.

One of the earliest rules of the Cistercian order forbade the erection of lofty towers in connection with Cistercian churches, so that the Mellifont monks probably contented themselves with a low belfry raised over the crossing of the roofs. The churches of the monasteries of Villiers and Aulne, two ancient examples of Abbey churches, exhibit a small belfry or fleche, rising from the junction or crossing of the nave and transept roofs, but neither are built of masonry.

These churches were also branched from the parent house at Clairvaux about the same time as Mellifont. In the north side wall of the sanctuary is a door for which no use can be assigned. In the older examples of abbey churches such a feature is absent, while at Mellifont there are no traces of any apartment or building into which this might have led. It is possible that the sacristy might have occupied this position, although there is little room for such a building because of the near proximity of the uncut natural rock, and

besides, such a position would be most unusual and very inconvenient.

The transeptal aisles were divided into three bays, each forming a small chapel. In conformity to Cistercian usage each had a piscina which, by the ordinal of these monks, was of much greater importance than to other communities. Here were performed the prescribed ablutions, both before and after the more solemn parts of each Mass. The piscinas still to be seen present no remarkable degree of ornament. Of the small recess in which each was placed no complete trace is left. The basin of each is of the usual dished type drained in the centre of each pier.

From the sides of the large piers projecting out towards the nave are the remains of the bases of the rood-screen. This feature, which divided the choir from the nave, also served in Cistercian churches as the division between the stalls of the choir monks or fully professed brethren and those of the lay brethren. Of the rood-loft, which we are told surmounted the rood-screen, no traces are left, neither appear any remains of the small stair leading up to it as we generally find. We may, therefore assume that at Mellifont the rood-screen was only erected to support the crucifix and accompanying statues, and that the lessons, from which the rood-loft has taken the name of Jube, were given from the step beneath it.

Between the easternmost piers at the crossing is yet visible the presbytery step dividing the sanctuary from the choir, near the centre of it is a socket, probably intended for the foot of a centre post, which at certain penitential times screen off the altar from the rest of



MELLIFONT ABBEY: WINDOW IN NORTH WALL OF CHAPTER HOUSE.

* A paper read before the Architectural Association of Ireland.

the church. There is another socket-hole near to this last, for which no use can be assigned, except it may have been for a lectern. In the south wall of the sanctuary is a niche, now with a protective grating in front of it. It contains the elaborately carved remains of the piscina for the high altar. It was executed in Caen stone, and is of remarkably beautiful design and clever workmanship. The dogtooth moulding, in addition to the usual work bestowed on it, is deeply undercut, so that a pencil can be passed underneath the raised leaves. The faint remains of the "founder's tomb" are to be seen in the N.E. angle of the sanctuary. But little of this once beautiful monument now remains.

In the east wall of the sanctuary, at about 4ft. 6in. from the ground, is a moulded sill course, whose profile is remarkable. It presents the outline of the usual sill, but is inverted. Its working and general character would seem to indicate that its reversed condition was unintentional, though how it occurred we cannot ascertain.

A noticeable feature of the construction of the large piers at the crossing is the manner which was adopted for working the small shafts. These shafts were detached, with the stonework of the solid pier hollowed out to receive them, having at intervals bond-stones worked out of the solid. We cannot assign any reason for this method of working the shafts. To our minds it would appear to have been much easier to have worked the shaft out of the solid for the whole height of the pier.

The church evinces, as before noticed, curious and well defined marks of alterations. The piers at the crossing show that the later work was built up against the earliest portions, showing a well defined line of junction. Why these changes were made we cannot tell: perhaps to strengthen the piers, or to keep up with the architectural style of the day. No traces of the west end of the church are to be found. The length of seven bays, said to have been the extent of the nave, would bring the west wall near to where now appear some traces of a foundation. But from its appearance it does not seem to have served as a footing for the west front of the church, and not a sign of the west door or its accompanying features are apparent.

The north door, or, rather, the jambs of it, are still in existence, near the centre of the north transept front. The mouldings of the jambs are of beautiful arrangement, and from their profile may reasonably be adjudged to be of a character of the fourteenth century. A little eastward of this door we see a few steps of a spiral stone stair which, it is assumed, led to the triforium. In the northernmost chapel

of the west transept aisle is a recessed press formed in the thickness of the large pier, which corresponds with the pier containing this stair. The remains of this press, which was, perhaps, made for the reception of the sacred vessels, are greatly decayed, and little architectural treatment is now evident.

Turning to the external appearance of the walls of the church: The buttresses, except those at the angles, are of slight projection. Those at the angles are fairly massive, and are built of rubble masonry, with sandstone quoins. A triple plinth runs round the east end of the church. Each stone is throated underneath. Some of the buttresses have, in addition, a projecting drip course (but which is not throated) immediately above the plinth course. The plinth course and mouldings are in a very fair condition, the stone of which they are composed being of a good weathering nature. The walls of the southern transept are not nearly so well defined as those of the northern; the ruins of later additions and alterations have left them much confused and jumbled together, rendering it merely a matter of conjecture as to the precise form of its original divisions.

We may now leave the church, and, passing along the eastern walk of the cloister, a few paces will bring us to the Chapter House, situated opposite the junction of the northern and eastern walks of the cloister, and nearly adjoining the south transept of the church. This building was long known as St. Bernard's Chapel, presumably only because of its ecclesiastical appearance. The date of this building is a good deal later than that of the building which it adjoins. By reference to the plan, it will be seen that this building was built up against an old wall, so that an external doorway of the earlier building became the door of communication between the Chapter House and the cloister. This doorway was once one of the wonders of Mellifont, according to the enthusiastic description of eye witnesses. Little, if any, of this wonderful work remains. One or two stumps of shafts and their bases still exist, but everything else has vanished. This doorway is said to have been worked out in a kind of marble, and it was enriched with painted decorations in gold and very brilliant colours. A writer in Wright's Louthiana, published in 1775, says that, when he saw it, it was sold, and just about being taken to pieces for removal.

Internally the Chapter House is 30ft. long by 19ft. 6in. wide. The walls are built of the rubble masonry similar to that used in the other buildings, with dressings and moulded stonework of the sandstone we have before mentioned. The Chapter House is groined in

two compartments, with cross and diagonal ribs. The ribs are all elaborately moulded, and each springs from a separate shaft. The treatment of the springing of the ribs is peculiar, and possesses much elegance. The shafts supporting the main ribs are continued to the floor line. Those of the wall ribs stop at a ledge at the level of which was inserted the stone bench where the brethren seated themselves every morning while the chapter of St. Benedict's rule was read. From this circumstance the building received its name of Chapter House.

No part of the tracery of the east window is left; only the bare opening remains, from which all the stone mullions have disappeared. There seems to have been two windows in each of the side walls; two are now built up, that one nearest the east end in the southern wall is much dilapidated, but the opposite window to this is entire and complete, only part of the centre mullion being restored work. The internal splay of these windows are finished on the inside with small shafts, each having carved caps, &c., supporting the moulded curtain arch. The caps to these shafts are delicately carved in various designs, but the bases are curious. They represent grotesque heads, which are carved so as to appear as if squeezed down by the superincumbent weight and pressure of the shafts above them. It will be noticed that the evident reason for such a treatment was the very slight projection of the sill course and the position of the shaft. For here we have the base proper some few inches above the sill, with the shaft continued underneath the base mould till it stops at the sill course.

The tracery in the window which is sufficiently perfect for us to decide on is of a fifteenth century type. The mullions and tracery are very massive and are of very graceful outline, and all delicately moulded. Internally, a carved nail head moulding of beautiful workmanship surrounds the tracery.

A close examination of the walls and mouldings of the Chapter House shows that the plain wall spaces were plastered, and the plaster decorated in bright colours. It is, however, remarkable that no allowance for the thickness of the plaster was made in the wrought stone dressings, consequently the plaster was of extreme thinness, and seems to have encroached on the cut stone work in many places.

The room over the Chapter House is known as the Muniment Room, or rather, that is what the rooms in similar position at other abbeys were called. This room is to be reached only by a risky climb upon the remnants of old walls. We have no information relative to the arrangement of the first floor apartments at Mellifont, and no knowledge of how and from whence it was reached. At present the Muniment Room forms a large roofless chamber with the west wall entirely missing. It has in the north side a fireplace, of which the upper portion and part of the stack are evidently of the original work. The fireplace has signs of subsequent alterations, probably those carried out when Lord Moore's family made their residence at Mellifont.

The inner arch of the east window to this room, of semi-circular shape, is yet existing, but there is no remains of tracery or other work to this or any other of the windows. In the south wall of the Muniment Room is a small press or recess for shelves. The stone front arch is still existing, as also some of the dressings of the jambs. The arch and jambs are chamfered on front arris, the arch also chamfered on the inside face. Within this recess are unmistakable evidences of shelves having been fitted up. Whether these were part of the original finishings or subsequent insertions we cannot now ascertain.

In the thickness of the wall containing the fireplace is a stone stair leading up to a second floor, or out to the roof or battlement. Beyond the fact that there are still to be seen the chases for beam ends or corbels in the walls of the Muniment Room at a height of about 8ft. from the floor; no information as to the finish of the upper portion of the Chapter House buildings can be obtained.

(To be continued.)



MELLIFONT ABBEY.

PLACES OF HISTORIC INTEREST.

WHAT THE NATIONAL TRUST IS DOING.

THE annual general meeting of the National Trust for Places of Historic Interest or Natural Beauty was held in London last week. The president, the Duke of Westminster, presided. The annual report stated that during the past year there had been a steady growth of membership. As the aims and objects of the Trust became better known, it was more and more referred to for help and advice in the protection and preservation of places of historic interest or natural beauty. The acquisitions of the past year had been two, each representing a different class of property. The members of the Trust had long been anxious that it should secure one of

THE HEADLANDS OF KENT

or Surrey overlooking the Weald, and commanding a view of the hills, as these promontories were being rapidly purchased for

through. The sale of the Marquis of Worcester's Monmouthshire estate might possibly provide the Society with the opportunity of acquiring Tintern Abbey, a piece of property of national interest. The Society hoped, as soon as the necessary arrangements could be made for their transfer, to become the trustees of the site of Driffield Castle and an old Columbarium at Garway, near Ross. The report also referred to the action taken by the Society to prevent injury and destruction, especially in regard to the St. John's Improvement and

VICTORIA EMBANKMENT EXTENSION BILL, the ancient camp at Uphall, near Ilford, in Essex, the Clava stones on the banks of the Nairn, Church Row, Hampstead, the old inn at Maiden Newton, the old vicarage at Luton, Christ's Hospital, the Monk's barn, Peterborough, and several railway projects. The statement of accounts showed a balance in hand of £191 on an income of £1177.—The President, in moving the adoption of the report and accounts, read a letter from the Princess Louise regretting her inability to be present and expressing entire sympathy with the

part of the playgrounds of London.—Canon Rawnsley, the honorary secretary, seconded the resolution, and mentioned that the Trust had taken action in opposition to the extension of the Great Western Railway from Henley to Great Marlow. Opposition had been also decided upon in the case of the proposed Lynmouth and Minehead light railway scheme, and the light railway projected to pass through the pass at Aberglaslyn. He also pointed out that

THE MONUMENT TO CAEDMON,

the first English Christian poet, would be opened at Whitby by the beginning of September.—Sir Wilfrid Lawson, Sir John Hibbert, and Dr. Longstaff supported the resolution, which was carried unanimously.—The Earl of Crewe, in moving the re-election of council, said that the work of the Society was of general and national concern. He thought, however, its energies at present would best be confined to preserving the smaller national monuments, since they were in the greatest danger of destruction. There was very little risk of the destruction of large historical monuments like Tintern Abbey.—The Bishop of Bristol seconded the resolution, which was adopted.



HEAD OF A BISHOP.



HEAD OF A BISHOP.

ANCIENT STATUES FORMERLY ON THE SPIRE OF ST. MARY'S CHURCH, OXFORD.

building, and enclosed. During the past year that wish had been in a measure fulfilled, Mr. and Mrs. Richardson Evans and their relatives having presented to the Trust, in memory of Mr. Frederick Feeney, some land on the spur of Toy's Hill, which afforded an uninterrupted view to the South Downs. This was the first realisation of the idea suggested by the Trust that memorials should sometimes take the form of beautiful scenery or of land commanding beautiful views dedicated to the memory of the dead. The adjoining piece of land on the spur had been presented to the trust by Miss Octavia Hill. The Trust had also acquired

JOINER'S HALL, SALISBURY, an interesting old building, the impending destruction of which had too often led only to protests and vague regrets. The work of repairing the old Clergy House at Alfriston was now nearly complete. A memorial stone had been erected at Barras Head recording its purchase by the Trust and its dedication to the public. With regard to Barmouth cliff, the Council regretted that the negotiations with regard to the addition of certain land to that already possessed by the Trust had fallen

"good and useful work" the Society is doing. He trusted that as the Society became more known it would be more liberally supported. It was a matter for congratulation that two acquisitions had been made during the year to the property of the Trust, and that the old Clergy-house at Alfriston was now repaired and open to the public. Large properties belonging to the Duke of Beaufort would shortly come into the market, among them Tintern Abbey, and the Council were now in communication with the Marquis of Worcester's solicitors with a view of ascertaining whether it was possible for the abbey to be sold to the Trust. Unfortunately, it was not possible for the Trust to be always successful in its action. It had been unable to prevent the melancholy destruction of the Falls of Foyers. He could not understand how it was that more local interest had not been taken in the preservation of these falls, the spoilation of which he considered the most discreditable achievement of the time. With regard to the Hampstead Heath extension scheme he hoped that the project would shortly be brought to a successful completion, and a very considerable addition made to the amenities of that most desirable

STATUES AT OXFORD.

THE illustrations on this page show two of the magnificent series of ancient statues once adorning the spire of St. Mary's Church, Oxford. In common with their fellows, they are, despite their centuries, in a remarkable state of preservation. The stone has weathered to a surface of great hardness; with care and skill these might have been retained in their ancient position on the tower, whereas they now rest in a dimly-lighted basement room at the back of the church. The illustrated article on the work done to the tower now appearing in the ARCHITECTURAL REVIEW will be of interest to all who know Oxford and deplore the loss of her most striking monument.

IN the notice of the Manchester Building Trades Exhibition, which appeared in our last issue, the firm of Walter J. Pearce was referred to as Walter T. Pearce. As there is more than one firm of that name engaged as artists and craftsmen in glass, we desire to make it clear that the work we illustrated was by Walter J. Pearce, of 12 and 14, Albert Street, Manchester.

A FAMOUS WARWICKSHIRE CHURCH.

GREAT SCHEME OF RESTORATION.

AT a famous Warwickshire church—the Church of St. Mary, Warwick—a great work of restoration has recently been carried out. The work has been going on for fifteen years, but no detail of the history that remained writ in its walls, and set forth in its monuments, has been effaced. Standing now almost exactly as it did 200 years ago, the fabric tells a story which has all the interest of fidelity, though some of its chapters may not altogether please the lover of purity in Architecture. The first chapter, says a correspondent in the Birmingham Post, is to be read in the crypt—all that remains of

THE OLD NORMAN COLLEGIATE CHURCH founded on the site of an ancient Saxon edifice, and possibly of an earlier British church, by Roger de Newburgh, son of the first Earl of Warwick, about 1123. Here the marvellously well-preserved vaulting, the massive piers, and the characteristic toothed mouldings tell their tale tersely, but eloquently, as far as it goes. The eastern portion of the church, viewed externally or internally, presents a more richly illustrated, though not quite complete portion of the story. Piled in picturesque irregularity, the chancel or choir, the Beauchamp Chapel on the south side, the Chapel of St. Anne, the staircase turret and the little semi-hexagonal chapter-house on the north, and the clerestory

WITH ITS FLYING BUTTRESSES,

form a poem, the harmony of which all but quenches the one note of discord thrown in by later builders. The rich panellings and tracery of the early perpendicular period tell of the taste and piety of yet another family who held the earldom of Warwick. Thomas de Beauchamp, one of the heroes of Crecy, who died in 1394, and whose effigy, with that of his wife, reposes on a high tomb in the middle of this part of the church, was the founder of the choir. The Architecture, however, shows that the work was completed, if not begun, by his son and successor, Richard de Beauchamp. The latter is the Beauchamp who built for himself and his family the beautiful mortuary chapel on the south, one of the architectural gems of Warwickshire. The east window of the choir is of six lights, divided by a transom and filled with modern-painted glass in memory of the Rev. John Boudier, vicar from 1815 to 1872, and representing scenes in the life of the Saviour. At each side the choir is lighted by

FOUR FOUR-CENTRE ARCHED WINDOWS

of four lights, continued downwards in blank panel work. The roof is groined in four bays, the octagonal panel in each bearing a shield with the arms of the Beauchamps. Flying ribs springing from the spaces between the windows help to support the roof, and make a graceful finish to the design. The sedilia piscina and the richly-carved ground recess to the north side, supposed to have served as a holy sepulchre in Passion Week, with other ancient and interesting features, remain. The reredos, a fine piece of work, though scarcely in harmony with the rest of the choir, represents the Adoration of the Magi. It was given in 1886 in memory of Mr. Margetts, a well-known citizen of Warwick, and forms one of the few features of the recent restoration which affect the chancel.

THE BEAUCHAMP CHAPEL,

commenced in 1443 and finished in 1464, with the elaborate tombs of its founder, of Ambrose, the good Earl of Warwick, of the famous Robert Dudley, Earl of Leicester, and his third wife, of "the noble impe" his son, and of various connections of the Beauchamps; its delicately grained roof, its sculpture of various kinds, its niches despoiled centuries ago of their golden images, its deeply interesting chantry chapel, and its wealth of architectural and historical associations, must be passed over. Coming back to older portions of the

church more closely touching the building as a place of worship. Of these among the older portions should not be left unnoticed the ancient chapel on the north side of the choir now used as a vestry. The minister's portion, divided from the rest by a stone screen, believed to date from the fifteenth century, has in its windows some very interesting fragments of the early stained-glass from the east window of the choir, and of some later glass, apparently of Flemish origin. From the outer part of the vestry the little chapter-house, disfigured since 1868 by the incongruous monument of Falke Greville, the first Lord Brooke, but otherwise requiring little else than cleaning to make it seemly. There is not much else to complete the enumeration of the ancient parts of the church still remaining. The same Richard de Beauchamp who built the choir and the chapel rebuilt the nave and aisles. A drawing made towards the end of the seventeenth century, and attributed by some to Sir Christopher Wren, shows a harmonious Gothic church except that a lead roof, steeper than is customary with lead, though, as now, dropping in a curve from the more lofty eastern gable, had taken the place of the high-pitched roof of tiles which no doubt formed part of the original structure of De Beauchamp. At the west end was a Norman tower standing within the boundary line of the nave, while over a porch on the south was a chamber known as the library of Rous, who was chantry priest of Guy's Cliff, in the fifteenth century, and one of Warwickshire's famous antiquaries. Such was the church which might have remained to the present day, to afford to the restorers a more grateful task in some respects than that which they have had to perform. But on September 5th, 1694, a great fire broke out in Warwick, and many of the inhabitants removed their goods to the church for safety, as they thought only, however, to furnish fuel for the destruction of

A LARGE PART OF THE CHURCH

itself. The tower, nave, and transepts were completely gutted, and had to be pulled down. The fire-marks on the northern walls of the transepts still remain to call forth gratitude that a loss even still greater was escaped. Many would say, no doubt, that the rebuilding was a greater loss than the fire. It was the era of Wren, and the devotion of Wren's disciples often outran their judgment. It is to one of these disciples, Sir William Wilson, then carrying on the business of a builder at Sutton Coldfield, that we owe the present incongruous effect. A new nave was built, having four windows on each side, each window containing six principal semi-circular headed lights, three above and three below, divided by reeded shafts or mullions, an attempt at tracery being made on the head of each window by filling it with a large light and two smaller lights of the much derided "horse collar" form.

THE TRANSEPTS

—which were slightly extended—were similarly treated. In the spaces between the windows were placed buttresses in stages, but of meagre design and slight projection. No clerestory was provided, but, a "railing" being then considered an indispensable architectural feature, the builder placed a horizontal cornice along the wall, a little above the windows, and over this an open balustrade parapet, with heathenish stone urns at intervals. Not satisfied with so adorning his own mantelpiece, so to speak, Sir William Wilson carried his railing and his knobs along the clerestory of the old choir. The new tower, it is said, was carried up 90ft. on the old site when it collapsed. The piers supporting the inner western arch of the nave are very massive, and appear to have been intended originally to support a tower. The site, however, was changed, the two western piers of the tower being used to support the east side, and two more being built outside the church, so that the supports of the tower now form four arcades open to the street.

THE TOWER,

in spite of its Architecture, is imposing on account of its height—to the top of the battle-

ments 130ft., and to the top of the pinnacles 174ft. When viewed as a whole the church and tower form an impressive ensemble. It is generally admitted that the architects of Wren's school, weak as they were in regard to detail, realised the importance of breadth and dignity in general design. Internally the nave was divided from the aisles and transepts by four arches on each side, pointed in form, and supported by piers of design suggesting the fifteenth century, the moulding capitals being composed of the echinus and acanthus. The roof was arched and ceiled, and each bay was divided into eight compartments by small plaster ribs, so as to resemble groining. During the Queen Anne and Georgian periods galleries were placed over the north and south aisles and at the west end. To the latter the organ, which formerly stood over the chancel arch was subsequently removed.

THE GALLERIES,

as such, left little to complain of, and the west gallery and organ front were finely carved, the principal feature being a trophy of musical instruments. The present period of restoration commenced in 1884 with the tower, which was taken in hand by Mr. Butterfield about fifteen years ago. In this case, as in others, the repairs were rendered necessary by the crumbling of the soft Warwickshire stone. The tower was taken down to below the battlements and rebuilt exactly to Wilson's design, while the fancy was renewed where necessary. The artistic scaffolding of the tower at the time was the subject of much admiration, and a lady living in the neighbourhood was led by noticing it to give £2000 to complete the work of repair, while the building of the tower in Queen Anne's reign cost £4782. The recent repair of the tower cost £6000. In 1891 Mr. J. A. Chatwin, of Birmingham, succeeded Mr. Butterfield as the architect. It was then proposed to take down the galleries and rearrange the seating in the church. It was also found that the vaults under the flooring of the church were in an insanitary condition, and, therefore, a foot of concrete was put over the whole area. On taking down the galleries it was found that most of the timbers let into the walls were rotten, so that if the galleries had been retained they would have had to be rebuilt.

THE FLOORS

have been relaid with wood blocks, and the passages with York stone, and Portland stone slabs placed diamond fashion, giving a chequered effect of grey and white. The organ, built in 1717 by T. Swarbeck, used to rank among the finest and largest in the kingdom, but its mechanism was past repair. The church is now provided with a Hope Jones electric organ, similar to that in Worcester Cathedral. The ugly old pews have been removed, and a few oak benches, serving now as the Corporation seats, have been placed in the nave, to show how it is desired to replace throughout the church the chairs at present in use. The church is lighted with gas by means of very handsome pendants, by Thomason, of Birmingham. The recent building work, which has been done by Messrs. Smith and Son, of Milverton, includes the almost complete renewal of the tracery, such as it is, of the windows on the south side, which has suffered most severely from the weather, and such other repairs as examination has shown to be necessary. The organ, when completed, will have cost £2300, part of the scheme being to put a 32ft. pedal stop at the west end. Oak seats and desks for the clergy, and new choir stalls are desired, the present chancel seats being out of keeping with this, the finest part of the church. During the fifteen years, about £15,000 has been spent, and the additional cost of the estimated work is £5000. From the point of view of the visitor, the change has made it clear that ecclesiastical Architecture of the style of the later portion of the church is decidedly more impressive from the interior than from the exterior if the architect's design be given fair play. Though the loss of its Georgian snugness may be regretted for a time, St. Mary's, as becomes a church that was once collegiate, has now a cathedral-like aspect within as well as without.

TWYFORDS.

A CHAPTER IN THE HISTORY OF POTTERY.

THESE are the days of trade catalogues. Almost every firm of note issues, with regularity, voluminous budgets of its specialities. These bulky volumes attain varying standard of excellence, but until recent years the standard was for the most part depressingly indifferent. The trade handbooks of the lower order were not suffered long to endure the light of day, but were speedily swallowed up by the rapacity of that beautiful institution—the waste paper basket.

The press of competition to-day, however, is evolving something new. It is found that in trade catalogues a respectable mediocrity will not do. This discovery has led to the issue of volumes which would delight the heart of even the most venerable æsthetic. The trade expert, the artist, the printer, the lithographer, and the bookbinder have combined to alter the old order of things. One or two notable editions of recent date amply illustrate the point. But the advance on the Art side seems now to be extending to the literary; the trade catalogue, in fact, seems to be passing beyond the frontier of conventionality into a more literary clime. In the foremost van of the new movement are Twyford's Limited. Under their auspices has just been issued a most comprehensive "Chapter in the History of Pottery," by Joseph Hatton.

The author speaks of the antiquity, the beauty, the utility of the potters' art, ably and eloquently telling his story, which covers the romance of Bradwell and Burslem, and shows how early the name of Twyford became associated with pottery—how in the last quarter of the seventeenth century Josiah

tion of assuming a virtue though he might have it not, but of sustaining the disguise of a shrewd intelligence under the aspect of a doltish stupidity. The Elers took him on, and he successfully played his part of an indifferent toiler who was content with his humble wage and position." Astbury, through similar cunning, met with equal success. Josiah Twyford afterwards established his works at Shelton, and the family has continued potting in the district

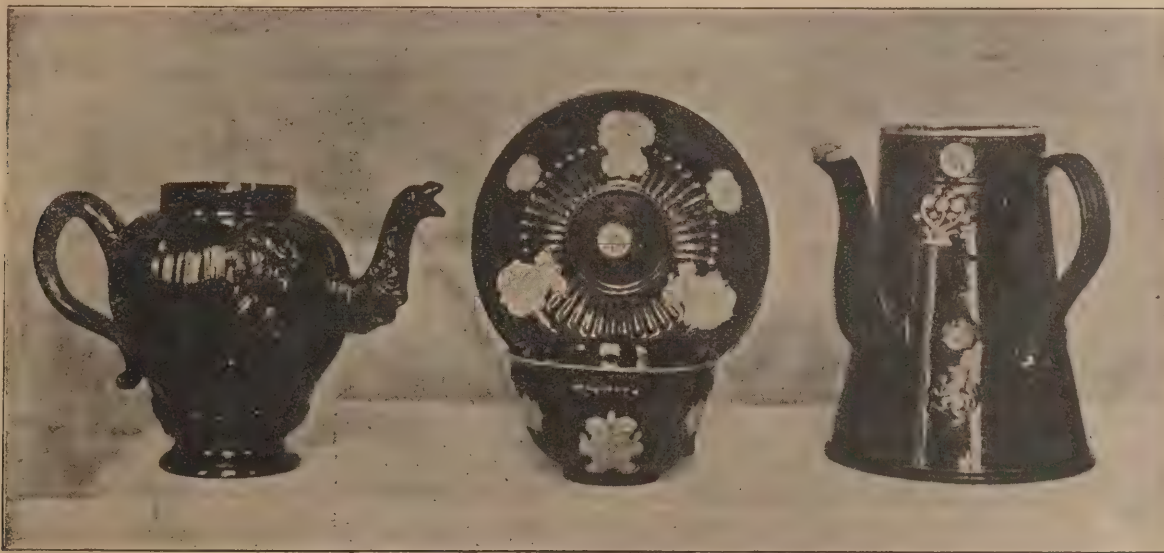


A TWYFORD TEA-POT, 1686.

(From "Twyfords: A Chapter in the History of Pottery.")

with probably the lapse of a generation until the present time. Prior to fifty years ago Twyford's made general pottery. Since then they have confined themselves to sanitary and plumbers' ware, and with what success we know. It is to the enterprise and ingenuity of these pioneers that the world owes the embodiment, in earthenware, of our soundest sanitary

he made bricks, and stamped them with the names and titles of the monarchs, for whom they were manufactured. The wheel, upon which his earliest designs of beauty and usefulness grew under his formative hand, was the wheel of the Ancient Egyptians, as it is in the present year of Grace the familiar implement of Staffordshire. The antiquity of the Art is emphasised by Homer, and the Art itself is the motive of some of the most expressive similes of the Holy Writ, now better understood of the people than that in which it is said of the Creator that 'Nations are in his hand as clay in the hand of the potter.' It contributes to the household service of the humblest cottage, and adorns the palace of the king. With the smallest coin of the realm the peasant may supply himself with such ware as he may need, while he who has a taste for Art in its most æsthetic form may indulge it in pots that are worth far more than their weight in gold. No less the standard of the world's social and commercial progress, pottery has provided the only existing record of the past; it may be said to have been the papyrus and stencil of pre-historic peoples. The Assyrians and Babylonians perpetuated their earliest writings in clay. Their cylinders, hexagonal prisms, and other forms of Ceramic Art were constructed for the purposes of legal and historical chronicles. In this fashion an account of the campaign of Sennacherib against Judea and the tributes of Hezekiah is preserved for all time. The ancient Greeks and Romans perpetuated the history of their manners, arts, and customs, in relics of the potter's wheel and lathe; and in that far-distant future of the New Zealander's investigation of the ruined arches of London Bridge he may decipher the landmarks of British story in the remains of the potting of one time, just as we to-day read the history of the occupation by the Romans in their bricks and



ASTBURY OR TWYFORD WARE IN THE JERMYN STREET MUSEUM.

(From "Twyfords: A Chapter in the History of Pottery.")

Twyford and John Astbury, by their cunning and artifice, overcame the strategy of the Brothers Elers, two potters of Amsterdam, who attained great success in pottery with the beautiful red clay found at Bradwell in the vicinity of Burslem, and who zealously kept their manufacturing secrets until learnt by the two local potters. Twyford and Astbury applied for employment at the works, knowing that the Elers selected their servants and labourers from the dullest and most stupid people they could find. Twyford met with early success. "He relied upon a carelessness and indifference of manner that went without a challenge. It was not a ques-

principles—and not only so, but the establishment of these very principles. Thus Twyford's have nurtured sanitary science as applied to pottery from its infancy. They are undoubtedly pioneers; they have ever been in the forefront in improving lavatory basins and the like, into the details of which we need not enter here.

We are tempted to quote Mr. Hatton's opening passage: "The potter was the first artist. He was also the pioneer of the world's great industries. His creative instinct found its earliest expression in clay. Before the myth of Prometheus and the stolen fire he made his pot and baked it in the sun. His earthenware is contemporary with the pyramids. He preceded Tubal Cain and the artificers in iron and brass. Two thousand years before the Christian Era

vases and the relics of their tombs and wash houses."

The concluding part of Mr. Hatton's "Chapter" deals with the manufacture of sanitary pottery, completing a very delectable review of the oldest and one of the most interesting of the Arts, with special reference to a firm most honourably associated with that Art. "A Chapter in the History of Pottery" would, we think, have gained considerably in artistic merit had the decorative side of the subject received more adequate treatment in illustration. As it is, a few early examples of pottery alone stand in relief to the many whole-page illustrations, which, while they show how, and in what manner of place, pottery is produced, do not in themselves embody the soul of Art. H.C.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

July 27th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slat; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

CONTRACTS have been entered into by the Government for the erection of three powerful forts on the cliffs at Dover—one between Dover and St. Margaret's Bay and two near the Western Heights. The forts, which are for the protection of the national harbour, are to be completed under very heavy penalties in

England. The original edifice was built in 1677 by the help of Charles II., the Duke of York, and Bishop Compton. In 1682 the Greeks were turned out of the church by the vestry of St. Martin's, and it passed into the hands of the Huguenots, who remained in possession until 1822, when a body of Nonconformists took it over. Twenty-seven years later it seemed destined to degenerate into a low dancing saloon, but Canon Wade, rector of St. Anne's, Soho, came to the rescue and succeeded in purchasing the property for £1500. In recent years the church has belonged to the High Court party, its vicar being the Rev. Robert Gwynne, B.A. It may not be generally known that St. Mary's is the church which figures in Hogarth's picture "Noon," one of the "Four Times of the Day" series. In the "Anecdotal Descriptions" of Messrs. Ireland and Nichols the scene in question "is laid at the door of a French chapel in Hog Lane, a part of the town at that time almost wholly peopled by French refugees or their descendants." An appeal is now being made for funds to restore the nave, the handsome chancel, the foundation stone of which was laid by the late Canon Liddon, is at present exposed somewhat to wind and weather.

CHURCH steeples are generally considered as of little use except for the sensation they cause by occasionally falling down, and for serving as a refuge for bells, which often disturb the repose of the community. It has been left for

the teaching of decorative design may be seen in a commission recently executed by the school for the chapel of the Deaf and Dumb Institute, Prince's Road. This consists of a series of four tablets, upon which are written, in decorative Gothic lettering, the Ten Commandments, the Lord's Prayer, and the Apostles' Creed. The purpose of the tablets being extreme legibility, as opposed to the ornate confusion common to many such adjuncts to the munemonic embellishment of a church, they are, therefore, moderately ornamented, and such purely decorative details as are employed do not interfere with the function of the lettering. A frieze of cherubim at the head of each tablet gives the necessary note of colour, and imparts a unique character to the design.

The prices at the Burne-Jones sale can only be described as marvellous, when we remember that the majority even of the pictures were unfinished or were mere studies. The 5500 guineas given for "Love and the Pilgrim" is the high-water mark of Burne-Jones prices, and altogether something like £24,000 was obtained for ninety lots. How the appreciation of Sir Edward's drawings is increasing among connoisseurs may be seen from the 650 guineas given for "The Dream of Lancelot," and the figures, relatively as large, paid for other pastel studies. The watercolours, of which there were only eighteen, fetched £7000, which was



TWYFORD TEA-POTS IN THE HANLEY MUSEUM.

(From "Twyfords: A Chapter in the History of Pottery.")

eighteen months, and operations have already commenced.

LONG after the time promised, steps are being taken to place the new panels on the front of St. George's Hall, Liverpool, scaffolding being now in course of erection for that purpose. No doubt the unsymmetrical arrangement of the sculpture on the front of the hall has been a puzzle to strangers, but this will be obviated by the fixing of the new panels. In this connection it is gratifying to learn that the group of figures at the south end of the hall are to receive that attention which they so badly need, as for long enough, in consequence of their neglected condition, they have been the subject of complaint. It is understood that the figures are about to undergo a thorough examination by an expert, with a view to ascertaining what requires to be done in order to improve their appearance. Undoubtedly the group is one of the finest of its kind in the country.

ST. MARY THE VIRGIN, Hog Lane—the older part of which the County Council has just demolished on the ground that it was no longer safe—is the most ancient Greek church in London, or, for the matter of that, in all

the village of Long Sutton to find a new municipal use for these miniature "starry-pointing pyramids." The Urban District Council of the place mentioned have a fire-engine and several lengths of hose, but are at a loss for means of drying the latter after they have been washed in preparation for a conflagration, on any scale, that may take place. After due reflection they severally and conjointly evolved the brilliant idea of utilising the steeple of the parish church for that purpose. The proposition that "hose" exhibited on a church might be construed by some as unauthorised ecclesiastical vestments was considered frivolous, and the vicar was accordingly requested to make room for the articles. At first he demurred, finding no precedent for such a use of the church fabric, but after a long correspondence he seems to have conditionally granted assent. He insists, however, that the whole matter must be left to his superintendence, because he repudiates the notion that the Urban District Council have anything to do with church management. Fire-hose hung out for drying purposes can hardly be considered as an ornament to a steeple, but really good effects might be obtained, especially of the sunset kind, if the burnished helmets of the firemen could be added.

A VERY practical result of the attention which the Liverpool School of Art gives to

quite as remarkable as anything in the sale. Burne-Jones was a splendid draughtsman, and, large as were the prices paid for many of his drawings, we cannot think them, on the whole, excessive. That hundreds of guineas should be given for finished studies is, on the whole, less remarkable than that fifty should be paid for small drawings of the most sketchy description.

We cannot venture to suggest, says the St. James's Gazette, what may be the position of Burne-Jones prices twenty years hence; but it seems highly probable that in the immediate future they will exceed even the remarkable results of this sale. It would be difficult to account for such prices, were it not that rich men now regard picture-buying as an investment. And nobody can doubt that, when the purchases are judiciously made, pictures often do provide a better return for the original capital than could have been obtained by investing it in stocks and shares. Moreover, there is no more agreeable way of investing spare cash. You have the pleasure of looking at the pictures—and even an inferior picture is in a higher style of Art than the average share certificate. If a rich man framed and glazed his share certificates and hung them round his walls, his life would be made uncomfortable for him, but happily nobody can be called a vulgar plutocrat for collecting a gallery of fine pictures.

THE London County Council had to face some grave decisions at its last meeting in relation to the direct employment of labour. It is an open secret that there has been much difference of opinion among the Progressives as to whether it is wise to load up the Works Department with the new asylum, which means over a quarter of a million. Therefore tenders were invited; but the lowest contractor proved to be £12,000 above the estimate for which the Works manager was willing to do it, and the Asylums Committee, being in a great hurry to house their ever-increasing army of lunatics, have unanimously agreed to give the big job to Mr. Adams.

ODDLY enough, other heavy works are also falling upon the Works Department. There is £120,000 worth of sewer work which is coming in at once, and there is a block of the Foundry Street dwellings, for which no outside contractor will even tender. And then there is the Greenwich Tunnel, for which Messrs. Mowlem and Messrs. Pearson have tendered, but only naming prices more than fifty per cent. above Sir Alexander Binnie's estimate. The Bridges Committee propose that the engineer should do this himself, but that will never do. We cannot, the Chronicle observes, have two or three Works Departments running side by side. If Mr. Adams cannot undertake the tunnel—and we fancy it is not within his natural scope—then it must go to the contractor; as an excellent object-lesson of the comparative costliness of that method of municipal work.

It is not commonly known that the shell of portions of old Whitehall Palace is preserved within the walls of the range of buildings now occupied by the Treasury, Privy Council, and Education Offices, which will be vacated upon the completion of the proposed new buildings in Parliament Street. For on that site Henry VIII., on gaining possession of Cardinal Wolsey's palace, until when called York Place, erected a cockpit, a tennis court, certain "lodgings," bowling alleys, and a great hall with four angle turrets, along the park side. His additions were separated from what is generally termed Whitehall Palace by the northern part of King Street. Across that street he built two gates—one, by Holbein, named the Cockpit Gate, opposite the present Dover House, and the other, King Street Gate, to the south, at the south-west corner of the Privy Garden, whereof a slip yet remains adjoining Gwydyr House, tenanted by the Charity Commissioners. The cockpit's exact position, which gave rise to some "historic doubts" not long ago, is clearly shown in Newcourt's map, engraved in 1658 by Faithorne, in Fisher's large-scale plan, and in later plans preserved at the Soane Museum. At this day it is covered by the Treasury Chambers, built by Kent in or about 1740, which stand between the First Lord's official residence in Downing Street and the south-east corner of the Horse Guards parade ground—the old tilt-yard, where is mounted the guard still styled for military purposes the "Tilt-yard Guard."

THE Cockpit, too, gave its name to the adjacent lodgings. From his rooms there Philip, fourth Earl of Pembroke, saw Charles I. walking to "the street before Whitehall" for execution of sentence; on February 25th, 1649-50, the Commons resolve that "the Lord Lieutenant of Ireland shall have the use of the lodgings called the Cockpit;" writing to his wife to announce his victory at Dunbar, Cromwell addresses his letter to her at the Cockpit; the lodging was afterwards given to General Monk, who died therein in 1670, and then to George Villiers, Duke of Buckingham. The present Treasury Chambers, in Whitehall, encase the walls of the great hall of the Palace, next to which, southwards, was the tennis court (Privy Council Office), as plotted in Fisher's plan of the Palace surveyed before the Duke of Albemarle's death. A passage between the hall and tennis court gave access from the street to the Cockpit lodgings in the rear. Sir John Soane transformed the hall and tennis court for public offices; a model he made shows that he designed a corresponding

block to stand on the remoter (or south) side of Downing Street, where are now the Home and Local Government Offices, with a triumphal arch between them opening into the Park. There Sir Charles Barry made further changes in Soane's elevation, so that as seen from Whitehall the front retains not one pristine feature to tell us its story.

IN a speech delivered on the occasion of the distribution of prizes to exhibitors at the Salon, M. Jean Paul Laurens was bold enough to attack with some severity the part played by the amateur in the practice of Art. His view seems to be that the effect of the exhibition of amateur work is to lower the standard of the national school and to interfere with the proper development of artistic effort. The question which he opened up is quite as much a burning one in this country as it is in France. Our exhibitions suffer in value and authority from the incursion of quantities of ill-considered productions which are at best simply more or less skilful imitations of the creations of the few great and original artists; and the bulk of these productions owe their existence to the amateur who can copy, but not initiate.

IF public taste were so educated that it could draw the right distinction between the earnest master and the plausible pupil the influence of the amateur might be harmless enough; but as things are the public, always incurably amateur, accepts the imitations, which are sufficiently commonplace to be intelligible to the outsider, and makes no attempt to appreciate the significant statements of the artist who originates. As a consequence there is no chance given to artistic educators to make themselves heard by the people at large, for they are kept, by the irresponsible hangers-on of the Profession, from coming properly in contact with that section of the community which is capable of enlightenment. The amateur has assumed the place of an interpreter of a language whose idioms he most imperfectly understands, and by his interposition the public, which understands less, is led hopelessly astray. For this reason, says the Globe, M. Laurens is certainly justified in his complaint, and we may echo it in this country.

THE Church of St. Clement Danes, Strand has at last been reopened after being closed some months for restoration. The restoration has been carried out at a cost of £5750. The church, which was built from the designs of Sir Christopher Wren, is chiefly remarkable for the profusion of plaster carving in the roof. This, as well as the old oak carving, has been restored, and no effort has been spared to bring out the whole of Wren's beautiful work. The electric light has been introduced, and the church has been re-seated, the old oak pews being utilised. In addition, new choir stalls have been added, and an extension has been made to the massive organ case. The church was attended by Dr. Johnson, when he lived in Bolt Court, and a tablet let into a pillar near a seat in the north gallery which he used to occupy states that it was placed there by parishioners "in remembrance and honour of noble faculties nobly employed."

THE Bishop of London, at the opening ceremony, said it was easy to look back upon the church as being a comparatively modern church, and as being associated with one particular epoch of Architecture, as, no doubt, it was. But it was not a new church when it was built. When the present structure came into existence it was meant to be simply an extension, or a perfecting, of something that had been there before. What that building was they did not know, but an inscription told them that it was gradually decaying in the year 1680, and that the men of that time undertook the rebuilding of it. Its very name told them of its great antiquity. It was placed just outside the walls of London, where, probably, there had been an early settlement of the Danes; and the name of that settlement was absorbed into the name of the church, and had remained ever since. Church after church was built upon the site, one replacing

another, until they got the building in which they then stood. The men who built it knew what they were doing; they took the old church and used such of it as they could. It became a larger, and, perhaps, a more beautiful church than ever it had been before, the services of that great architectural genius, Sir Christopher Wren, having been secured to render it beautiful. And so the present church came into being as a memorial of the faith, the perseverance, and the self-sacrifice of the men of the seventeenth century. Few buildings were ever designed with a greater eye to proportion than the church which they saw restored to its original condition that day. It was rich in memories, and richest of all in the memory of one who worshipped there—Samuel Johnson, the most characteristic Englishman, perhaps, that England had ever produced.

Is a glass covering over an approach from a roadway to a building describable in law as a structure? That point may be settled soon, as the Queen's Bench has granted a rule calling upon a West London magistrate to show cause why he should not state a case with reference to a summons by the County Council against the De Vere Gardens Hotel, Kensington Road. The Council urged that the hotel managers erected a "structure" in advance of the general line of building in the road, but the managers deny that the awning comes within the meaning of the statute.

It appears that the County Council is exercised in spirit about the illuminated advertisements now so frequently to be seen at night in the principal thoroughfares of London. Our ædiles are in correspondence with the various local bodies with a view to the issue of regulations. The public—who will not forget that they owe to the Council the restriction, some years ago, of the hideous "sky signs"—would certainly approve of a by-law forbidding the advertisement of pills, soap, or whisky on the Nelson Column, the Westminster clock tower, or the dome of St. Paul's. As to the impropriety of thus degrading the dignity of public monuments there would be complete unanimity. With regard, however, to these advertisements in general there would be some difference of opinion, the Daily Graphic thinks. An intelligent democracy is often amused when the luminous lettering flashes into sight; and, after all, there is no accounting for tastes. Possibly the Council might forbid the thing in some districts while permitting it in others—if that would not imply an invidious distinction between the æsthetic perception of the classes and the masses.

LONDONERS of all classes will welcome the new railway from Waterloo to the City. As far as locomotion is concerned, the two great wants of London are relief for the present congested traffic and adequate means whereby passengers arriving at the great termini can be conveyed to the centre of the town. Doubtless if we had our railway system to construct over again, we should begin with a great central station. But as it is we must make the best of what we have, and accept the fact that being the pioneers of railway enterprise, we have had to suffer for making experiments by which other people now benefit. Still, there is much that can be done to remedy the original errors, says the Globe, and the Waterloo and City Railway is, at any rate, a long step in the right direction.

THE Duke of Devonshire, while at Windsor the other day, was able to inform the Queen that the question of the new buildings at South Kensington, which has been exciting the Art and Science worlds for some weeks, has been settled by the Government to the satisfaction of both parties. An agreement has been arrived at which will keep all the available ground on the east of Exhibition Road for the purpose of an extension of the Art Museum, while Science is to be allocated on the west side of that road, on the vacant ground facing the Imperial Institute. This is in accordance with the plan which has been warmly advocated by the Royal Society and the Royal Academy.]

THE recent landslip at Cromer is only the last of a long series of catastrophes which during the past thousand years have buried more than a mile of land in the sea. One looks in vain for any mention of Cromer in Domesday Book. It was then but a hamlet of the town of Shipden. But Shipden has lain now for many years at the bottom of the sea. At the beginning of this century it was still possible to discern the masonry of its church at low water. In those days Cromer was an inland town. But in 1837 an extraordinary gale drove the sea to such a height that the very existence of the town was in peril for many hours. Since then a breakwater has been constructed to protect the town. The neighbourhood, however, is gradually disappearing. At Sheringham a frigate drawing 20ft. of water can now ride at anchor where forty years ago there was a cliff 50ft. high. It has been found necessary to move various buildings inland. A lighthouse was built in 1719 several hundred yards inland, but in little more than a century this lighthouse had to be abandoned owing to encroachment and a new one built still farther away. The Cromer cliffs are very sandy, and are especially exposed to the action of the sea, as they encounter the full force of the drift from the north-east.

AN accident, by which one man was killed and several others narrowly escaped with their lives, occurred a few days ago at Hampton Court Palace. A gang of men were engaged in removing a wall in the Old Royal Kitchen Garden, with a view to making some alterations in the position of the barracks. Six men were engaged on this work. The wall had been undermined and cut through some days before, and a brick pier built at each end for its support. The men were just putting in the last few touches, preparatory to going round to the other side and pushing down the wall, when it was noticed that the wall was tottering, and it fell with a crash. All the men ran straight away from the wall except one, James Fallan, of Hampton, who ran sideways. He was nearly clear, when the top of the wall caught him, killing him outright. The others narrowly escaped.

THE Markets Committee of the City Corporation have presented a report as to the utilisation of the old fish market in Farringdon Road in still further extending accommodation at the Central Markets. They instructed the City Surveyor to prepare and submit a plan and estimate for certain alterations in the internal arrangements of the shops and providing a main entrance from Farringdon Road. After consulting the tenants, they thought the building should be adapted for the purposes of the colonial and other meat trade. The surveyor's plan showed twenty-two shops, a total area of 8482 square feet, and in most cases the shops increased in depth. The estimated outlay was from £8000 to £8500, and the estimated income was taken at a minimum rent of 2d. per foot per week. That income was set down at £6475, and the outgoings at £2460, leaving £4015 annually to meet the cost of the land and the original building.

THE public had an opportunity lately of seeing acetylene gas in operation and in process of manufacture at the Imperial Institute. An installation on a larger scale has been made at the Earl's Court Exhibition. The bright white light flashed from the Victoria Tower and lamps were fixed in various parts of the ground. The history of the gas is interesting. It was discovered by Sir Humphry Davy about sixty years ago whilst experimenting with potassium. In 1859 Berthollet named it "acetylene," but no commercial benefits resulted from the discovery owing to the difficulty of producing calcium carbide on a large scale. Subsequently a French chemist and an American chemist simultaneously hit upon the method of coke and lime fusion by the heat of the electric arc. It is said that there are now about a score of manufactories of carbide in different countries. As the manufacture increases, the cost of the material will be reduced to a point that will

make the gas the cheapest artificial light in the market. Its photometric value as an illuminant is given as fifteen times that of coal gas. It is comparatively cool and free from noxious vapours. The production of acetylene by the new process is an easy matter. In the generator is placed a charge of calcium carbide, and the lid screwed down. When a light is wanted a small quantity of water is allowed to mix with the carbide, which at once forms the gas ready for use. It is important to know that there is no danger in connection with the operation. Carbide calcium is not an explosive. If thrown upon the fire it will not burn, nor will it emit any light if hammered to a powder. It becomes effective only by the action of the hydrogen of water. The installation at Earl's Court covers the largest area of any display of the kind in England at the present time. It represents more than 12,000 candle power, with a search light which on clear nights has been seen from Epsom Downs.

LORD FRANCIS HOPE, brother of the Duke of Newcastle, sought the permission of the Court of Chancery to sell the valuable collection of Dutch pictures, eighty-seven in number, which had belonged to Mrs. Hope, of Deepdene, Dorking, who died in 1884, leaving large estates to Lord Francis. Since their public exhibition, on loan to the nation, the collection has been in the custody of the Duke of Newcastle, but as his residence in Hill Street is being renovated, there is no home for the pictures. One learned counsel said he had a client who was prepared to offer £110,000 for the collection. Another lawyer said he also had a client, who had already offered £105,000, and paid a deposit of £9000, and he was now prepared to increase this offer to £111,000, the offer to remain open till Monday, July 25th. Mr. Justice Romer made an order for the sale, and directed it to take place in Chambers, by tenders, which should be lodged on or before July 25th, the lowest tender to be £111,000.

MESSRS. CHRISTIE, MANSON, AND WOODS have just sold a collection of relics of Marie Antoinette, Louis XVI., and La Dauphine Marie-Thérèse de France, and also a variety of porcelain, objects of art, and decorative furniture from numerous private sources. The principal articles included a pair of famille-verte beakers, enamelled with peonies, &c., in shaped panels, 9in. high, 50 guineas; an old Chinese cylindrical-shaped vase, powdered blue ground, pencilled with foliage in gold, and enamelled with branches of foliage in brilliant colours, 105 guineas; a cylindrical-shaped vase of old Chinese porcelain, famille-verte, enamelled with scroll foliage, &c., in green and red, 50 guineas; a pair of famille-verte eggshell lanterns, with mirror-shaped panels of kylins on a dotted groundwork, 48 guineas (the lanterns were from the Arkwright collection); a globular cistern of old Nankin porcelain, painted with kylins, ribbons, and balls in blue, 60 guineas; a collection of 100 spurs, many of the highest quality and rarity, formed by Herr Richard Zschille, and fully described in his work, "Die Sporn," 100 guineas; a gold enamel pendant, Italian sixteenth century, cruciform in shape, and composed of interlaced strapwork, 90 guineas; a gold and enamel necklace, German sixteenth century, composed of twenty large and twenty small oval links, of pierced strapwork design, enamelled in red, blue, and white, 190 guineas; an oviform vase and cover of old Derby porcelain, painted with a coast scene and vessel, and a landscape with ruins, and a pair of oviform ewers *en suite*, 70 guineas; an old crown Derby dessert service, made for the Princess Charlotte on her marriage with Prince Leopold, afterwards King of the Belgians, and purchased at the Marlborough House sale by the father of the late owner (Mr. Giles Redmayne, of Brathay Hall, Ambleside); the service is dark blue ground, richly marbled with gold, and painted with named views in England, Wales, Scotland, and Italy in colours, 100 guineas; and a pair of candelabra with seated figures of a lady and gentleman holding baskets of flowers, of old Dresden porcelain, 62 guineas.

THE fame of Lord Mayor "Jack" Wilkes is perpetuated by what is undoubtedly one of the ugliest monuments in the City; the obelisk on the south side of Ludgate Circus. The Common Council has lost an admirable opportunity of abolishing that monstrosity, or at least replacing it by something a little more æsthetic. The ungainly lump of stone was recently taken down and set back a considerable distance in order to accord with the new alignment of Fleet Street. It is now, however, ready to be once more restored to the public gaze, and the hoarding which has been around it so long is to be removed in a few days. Some may have thought that if the Corporation had not the heart to break the obelisk into material for repairing roads they might have left biting Time to gradually crumble it into dust, but they seem so anxious to preserve that they have actually given such a new lease of life as is derivable from two coats of paint.

DURING some recent excavations at the Kingston Baths, Bath, a lead consecration cross, believed to be of the period of the seventh century, was discovered. The cross is worked on a circular plaque about 3in. in diameter, and bears the names of the four Evangelists together with a Latin inscription, in a perfect state of preservation, with the exception of the date. It is the first specimen of Christian antiquity discovered in connection with the baths of Bath. At the last meeting of the Baths Committee the cross was produced by Major Davis, the city surveyor of works, who was requested to confer with the authorities of the British Museum with a view of obtaining an authentic report upon it. Major Davis stated that it was exceedingly valuable, and that nothing like it had ever been found in England before.

As straws show which way the wind blows, two recent occurrences in Paris indicate the leaning which Frenchmen have towards the art of sculpture. The Academy of Medicine recently elected two doctors, Messrs. Paul Richer and Ribemont-Dessaignes, to chairs. Both of these are almost as distinguished as sculptors as in their regular profession. The Council General of the Seine accords every year five purses of £50 to deserving artists entering on their profession and displaying talent. The candidates who had adopted sculpture were twice as many as the painters, and they obtained an equal share in the awards. In England painters outnumber sculptors by at least fifty to one.

IN a local paper in Jamaica, called *The Gleaner*, a correspondent gives an interesting account of a Jewish cemetery he has discovered in Lacovia, a small negro village in the colony which has seen better days. This village was once the centre of great activity and the scene of many military achievements; now, nothing but ruined barracks, vaults, and decayed mansions witness to its departed glory. It is on the main road from Santa Cruz to Black River that the cemetery lies. It is 150 years old, but it was unknown even to the oldest inhabitants, many of whom shook their heads in doubt when the discovery was made known. A representative in Jamaica of Sir Walter Scott's "Old Mortality" managed to find and clean eight slabs, the inscriptions of which became perfectly legible in the process. These represent but a small proportion of the total number of tombs in the cemetery. "Many," he says, "are no doubt deep beneath the soil, judging from the inequalities of the land; many have perhaps been stolen, and the balance employed as grindstones—a vile practice in these parts." He notes an interval of fifty-five years between the oldest and the latest inscriptions of the slabs he unearthed—a period which must have witnessed many Jewish burials—especially when we consider the hot and malarial condition of the island in which it is situated, and, he pertinently asks, "What has become of these tombs and monuments?" There seems little doubt that they have suffered the same fate as the beautiful slabs and carved monuments in other cemeteries.

IN the third Rural Vignette, in the Land Magazine, Mr. J. A. Benson remarks that notwithstanding the activities of estate architects and builders who, in the prosperous years of thirty or forty years ago, seriously threatened to pull down every old farmhouse in the country, replacing them with houses more in accordance with architectural ideas of those years, there are still a considerable number untouched by the ruthless hand of the estate improver. Here, nestling beneath the hill in a rich pasture, studded with lofty elms and mossy old apple trees, with a fruitful orchard a little distance removed, and on a higher point of the uplands the luxurious grass everywhere veiled with the gold of buttercups, stands one such old farmhouse, as distinctly ancient as the old hall in the valley beyond, which was built in the reign of King Henry VIII. No jerry-builder was employed at impossible terms to place this rural domicile in the landscape. The building is still substantial, and every stone as upright as when placed in the building by the plumb-rule of the mason. Although the old roof is a paradise of the birds, whose callow broods are continuously crying out from the eaves for the dainty morsels which the greensward affords them, the tiles, spangled with the grey and gold of lichen and moss, are in perfect order.

THERE is shortly to be offered for sale by auction in London one of the most interesting and historical properties situate north of the Tweed. This is the beautiful ruin of Ardchattan Priory, on the north side of Loch Etive, Argyllshire, where Robert Bruce held a Parliament. It was built by John MacDougal in the thirteenth century, and was burned by Colkitt during Montrose's wars.

MR. ARMSTRONG retires from the Art Directorship of South Kensington Museum, and the candidates for the post are three. Professor Herkomer is understood to be out of the running, and the choice lies between Mr. Alfred Gilbert, R.A., and Mr. Walter Crane. Between these two eminent and accomplished artists the wiser appointment, it is said, would be that of Mr. Walter Crane. He knows by personal contact with the students of Manchester and Reading the practical side of art teaching. Still more, he is a man of ideas and convictions. If once such a man gets fixed at South Kensington there is no saying what a fine future may be in store for English decorative art.

THE Royal Academy's architect has been consulted about alterations in the rather gloomy premises of old Burlington House, which is the Keeper's residence for the official year of nine months, for his duties, though not exactly onerous, are constant. He has to attend every Council, and exercises a kind of general supervision over all the school's, though of course the Visitor of each has the control over his own department. He ranks after the treasurer, and is practically one of the vice-presidents of the Academy. The post is therefore one which requires to be filled by a man of tact, of varied accomplishments and of weight with his brethren. There is a general impression that the choice will lie between Mr. Davis, Mr. Yeames, and Mr. Crofts.

It has been proposed by the Dean of Rochester that the Freemasons of this country should provide funds for rebuilding the central tower of the Cathedral. At the present time Rochester Cathedral has a modern central tower erected in the year 1827, from the designs of Cottingham, an architect of considerable reputation in his day, not only in England but also on the Continent. Among other works the western tower of the Cathedral at Bruges was carried out from his drawings. We presume that it is proposed to take down the central tower at Rochester, and attempt a revival of that which formerly existed in its place. This was a low square lantern, crowned with a wooden spire, supposed to have been the work of Gundulf, who built the nave of the Cathedral. In "Winkles

British Cathedrals" we are informed that "a spire erected in 1749 has been recently removed," but King's engraving in the 1655 edition of the "Monasticon" shows the original tower and an ancient spire of somewhat remarkable form. It appears to have been square in plan, spreading out with a curve at the base, and having a V-shaped sinking on each side. The tower is very plain, with a single window on each side and an arcade rising as high as the apex of the transept roof. There are many views showing the tower with the 1749 spire, but King's is probably the only drawing showing the earlier one. What is usually called "Gundulf's Tower" is a very solid ruin attached to the north transept. It appears to form no portion of any scheme for the existing cathedral, and was either abandoned or partly pulled down when that was carried out. It may have been intended to serve as an isolated bell tower or some defensive work. With regard to the existing central tower of the cathedral, although its detail is poor the effect from a distance is not unpleasing, as its outline is good and the colour unobjectionable.

A YEARNING for æstheticism is evidently not the ruling passion of the City Press, as witness the following:—"Our advertisement hoardings are perhaps scarcely things of beauty—though to be sure they are far more pleasing to the eye than was the case a few years ago; but, at the same time, there is no reason why the public purse should suffer in order that the whims of the æsthetically minded may be pandered to. At the meeting of the Metropolitan Asylums Board one member suggested that the hoarding round the site for the new offices should not be let for advertising purposes, and declared his belief that the ratepayers as a body would willingly forego the money that would be received in the ordinary way. Happily the majority thought otherwise, and common sense gained the day. Why the ratepayer should suffer in order that a faddist may not have his sense of beauty disturbed is altogether beyond comprehension."

A NEW window has just been dedicated in the Lady Chapel of Winchester Cathedral. The window is the gift of the citizens of Winchester, and is in commemoration of the sixtieth year of the reign of Her Majesty the Queen. The total cost, including erection, is £300. The window consists of two rows of seven lights each, and elaborate tracery in the head. The main subject is the doctrine of the Incarnation—the Royal line of David culminating in Jesus Christ. At the base of the window, in the centre, is a small figure of the ex-Mayor of Winchester, in robes of office, as representing the citizens who are the donors of the window.

THE members of the Royal Archaeological Institute have been holding a congress at Lancaster. The programme included an excursion to Furness Abbey, and then on to Barrow and Peel Island. On arrival at the site of the famous Abbey it was described by Mr. W. H. St. John Hope, assistant secretary of the Society of Antiquaries, and his description included the results of the excavations carried on at the Abbey during the past three years, including the discovery of what is believed to be the Abbot's kitchen. It seems to have been of the thirteenth century, and to have had a fireplace with projecting hoods. It also had a groined roof springing from a central column. Mr. Hope has recently completed the greater part of a new ground plan of the Abbey, which shows all the later discoveries. Subsequently the party proceeded to Peel Pier, and by boat to Peel Island, where they visited the Peel of Fauldrew, which was also explained to them by Mr. Hope. In the evening the historical section of the Institute was opened at Lancaster by an address by Mr. J. Holme Nicholson, M.A., president of the Lancashire and Cheshire Antiquarian Society. A paper was afterwards read on "The History of Lancaster School," written by Mr. A. F. Leach, F.S.A.

A NEW HOTEL IN EAST ANGLIA.

THE Cliff Hotel, Gorleston, has just been completed. The designs are by Messrs. George I. Skipper, F.R.I.B.A., and F. W. Skipper, architects, of Norwich. The exterior of the building is of simple treatment, the style is leaning towards Scottish Renaissance. Reliance has been placed by the architects on the grouping and proportion of parts for the main effects. The west front is perhaps slightly more domestic in spirit, but the same treatment has been preserved. The main entrance is by a low, wide archway, with a band of carved brickwork running round the soffit. Above this arch is a series of windows and panelled work of faced flints, inclosed between two shafts, on which two heraldic lions are placed, and, above all, is a strongly designed parapet. The interior provides a spacious central

HALL OF IRREGULAR SHAPE,

the sea front windows looking out under three arches. From this hall access is given to nearly all the important parts of the hotel. The staircase starts here under an oak entrance on the right hand, and goes up to a landing contrived above this doorway. The fireplace is in stone and oak, under a broad arch, with seats on each side. Corridors run from this central hall, and on one side give access to a lounge hung with rich Japanese wall paper and strongly coloured naturalistic window glazing, to the billiard-room, treated with heraldic wall hanging, to the smoke-room, treated in a deep tone of blue and yellow, and to the gentlemen's lavatory. The drawing-room is entered from this corridor and is hung with choice French wall hangings. Here there is a

CARVED WOOD CHIMNEYPiece.

The whole of the wood work is enamelled cream. The glazing in the windows has been kept specially light and elegant in design, so as to produce a suitable effect for this room; and the gas brackets are in polished brass. On the other side of the central hall is a well-lighted airy reading-room, and beyond this is the dining-hall, an apartment treated with wood panelled walls to a height of about 8ft., and painted a green colour, and above a deep frieze tinted red. The ceiling is divided by wood beams and the panels filled with a decorative plastic material. From the ceiling and walls are suspended quaintly designed gas fittings and brackets with amber glasses. The windows are filled in the upper parts with strong and characteristic lead glazing, giving richness of effect. The chimneypieces are of stone, very quaint in design, massive and yet quiet, with niches and arched openings, with deep red tile hearths and kerbs, and quaint wrought and bright iron dog grates with green backs.

DECORATED WITH HERALDIC LIONS.

The surrounding and upper part of the chimneypieces is wood panelling, as also is the upper part of the doors, going quite up to the ceiling. The doors are mahogany, of rich design, the upper panels with arches and columns, and filled with lead glazings. Altogether this room has, like the rest of the interior, a treatment quite of its own in simplicity and quaintness, giving an old-house-like appearance to the whole place. The arches in the corridors are broad and low, with keystones reaching to the cornice. The decorated parts are richly treated, but general surface parts are plain. On the upper floors spacious corridors, broad, well-lighted, and sunny landings, well-appointed baths and sanitary arrangements, go to make the comfort of the bed and sitting rooms complete. Balconies are provided for many of these upper rooms. The kitchen in the basement has, for the greater part of it, an open roof for light and ventilation. The cooking is by a central range and other appliances. The walls in the basement are nearly wholly lined with glazed Cockrill-Doulton wall tiles, and every provision is made for the good service of the place in every department.

ARTISANS' DWELLINGS.

WHAT MANCHESTER HAS DONE.

AMONGST provincial cities, Manchester has taken a leading place in the attention which its Corporation has paid to the clearing of insanitary areas, and the provision of dwellings for the working class. It possesses a notable block of labourers' dwellings in Oldham Road, built by the City Council, which, however, is not the only scheme of the kind that has been carried through. These buildings occupy a site which contains a superficial area of 7842 square yards. They all have frontages to the main street, and cover about 3430yds. of the site. In order to secure a spacious recreation ground, the architects, Messrs. Spalding and Cross, provided a large central quadrangle, which is enclosed by a light iron fence. There is nothing of

THE GLOOMY BARRACK LOOK

about this block that in some erections put up for a similar purpose repel the very people they are intended to attract as tenants. The fact that shops take up the whole of the ground floor fronting Oldham Road is largely responsible for the attractive appearance of the structure. These are so arranged that they can be used by the occupants of the dwellings, or by those who, living elsewhere, rent them as lock-up shops. At the corner of the other façades are large double-fronted shops, which also help to get rid of the monotonous effect so invariably associated with long frontages. Much of the prejudice against Scotch flats in the minds of people this side of the Tweed is because of the narrow, badly-lighted staircases which lead to many of these homes. But in this Manchester building there is not that drawback. The staircases are of good width, and in straight flights, and give direct access to the external corridors and the laundry department on the attic floor. Windows on the level of each floor, and large top skylights afford ample light, and the

NEED FOR PROPER VENTILATION

was not overlooked. The tenements vary in size, but the height of all rooms is 9ft. In the one-roomed tenements the average size is 130 square feet and 1170 cubic feet, and in the two-roomed tenements one of the rooms contains about 174 square feet and 1566 cubic feet, and the other about 108 square feet and 972 cubic feet. There are 237 double tenements for families of four or five persons, and forty-eight single tenements which are for one person. Each of the sixteen shops has a cellar, and there are four laundries. Every dwelling has a well-ventilated food store, and also a place for storing coal. Good sanitary arrangements are essential for the successful working of such a scheme as this, and what was done in this respect met with the approval of the Local Government Board, the stringency of whose requirements in undertakings of this sort is well known to those whose duty it has been

TO SUBMIT PLANS

to them. The laundries are on the attic floors. Connected with them are commodious drying rooms, and this important department of any healthily conducted dwelling is easily reached from the staircases. Local "commons" bricks were used for the construction of most of the walls, with red terra-cotta and moulded brick strings, sills, and salt-glazed brick dados, but the façade to the Oldham Road is faced with local red stock bricks, and contains ornamentation enough to make it attractive. The whole building covers a square bounded by four streets, and the cost was a little over £50,000. The cost of the land to the Corporation, who, in sweeping away the insanitary area, had to buy half-a-dozen public-houses, besides the goodwill of a number of shops, was calculated at £5 per square yard, and £90,000 may be roughly stated as the cost of the experiment, which followed a similar but smaller one made by the Manchester Corporation in Pollard Street.

STREET IMPROVEMENTS.

A NOTTINGHAM SCHEME.

A SCHEME of street improvement is on foot at Nottingham. The formation of a new street from Lower Parliament Street to the south-eastern part of the city, and the widening of certain streets in connection therewith, is proposed. The question of providing an improved means of communication between the centre of the city and the large and growing district on the south-east side thereof has been under consideration for some time past. This matter has now become very urgent, owing to the construction of the New Central Railway Station, and the necessity for obtaining a route for the extension of the tramway system to Sneinton and the adjoining districts. The city engineer has prepared a plan of the proposed new road, showing that the improvement will commence by the widening of Lower Parliament Street, St. John's Street, and Cur Lane, and be continued by the formation of a new road through property lying between Platt Street and Colwick Street, in a direct line to Southwell Road, near its junction with Sneinton Street, including therein a widening of Southwell Road on the south-east side thereof. The width of

THE PROPOSED NEW ROAD

will be 70ft. The greater part of the property which will be required to be taken down to carry out the improvement consists of small back to back dwelling-houses of old and inferior construction. It is proposed in dealing with this improvement to acquire the whole of the properties lying between Platt Street and Colwick Street, and on each side of the intended new road as far as Southwell Road, with the view of clearing away a class of property which it is undesirable in the interests of the public health should be continued, and of providing valuable sites fronting the new road for disposal after the improvement has been completed. The cost of the improvement cannot at present be accurately determined, but the city engineer estimates it approximately at £235,000. The Improvement Committee of the Nottingham Corporation also propose the provision of working-class dwellings in connection with the new street improvement from Lower Parliament Street to St. Ann's Well Road. An application has been made to the Local Government Board for its approval of the scheme for erecting working-class dwellings on a portion of the Corporation estate on Coppice Road, to provide for persons who will be displaced by the

PULLING DOWN OF HOUSES

in connection with the street improvement from Lower Parliament Street to St. Ann's Well Road. After a public inquiry the Board has intimated that it is prepared to approve of the scheme. The scheme provides that the Corporation shall erect 100 dwellings of the description approved by the Board, on the site on the Coppice Road, as follows:—The first fifty within twelve calendar months, and the remaining fifty within eighteen calendar months from the approval of the scheme by the Local Government Board. The scheme further provides that the Corporation shall not, before the 100 dwellings to be provided in pursuance of the scheme are completed fit for occupation, demolish more than 140 of the houses required for the improvement now occupied wholly or partially by persons of the labouring class, and the persons residing in the remainder of the said houses shall not be displaced until the said 100 dwellings are completed fit for occupation.

The latest of the Rowton Houses has proved as successful as all the others, and another great building is rapidly rising for the accommodation of the poorest class of Londoners. The company has now shifted the scene of their operations to Hammersmith. This new house will be intended for 800 occupants, and will be somewhat more imposing than some of the others, since there will be no basement floor. All will be above ground.

Professional Items.

ABERDEEN.—It is proposed to erect a new Unitarian church in Aberdeen. The site is on the north side of Skene Street West. The new church—which will be built entirely of granite—would stand with its gable towards the street, this gable forming the main front, and carrying the chief architectural features. The gable front would have a width of about 45ft., and a height, from the pavement level to the apex of the pediment, of 50ft. A double doorway is formed under a semi-circular arch, with alternately-projecting arch-stones. At each side of the doorway rises a slender column, with moulded base and carved capital; whilst beyond this rise, on each side, more massive pilasters. Above the main entrance a bold moulded cornice runs along the entire front. Still higher, the idea that prevails in the design of the entrance is developed in the large gable window, which is divided into six lights by pilasterettes, while the entire design is enclosed by pilasters corresponding to those in the lower part of the front. The architects are Messrs. D. and J. R. McMillan, Union Street.

DUBLIN.—During the past three months the Church of St. Teresa, Clarendon Street, which is the oldest Catholic church in Dublin, has been undergoing improvement at the hands of the decorator. Improvements have been effected both in the lighting and ventilation, and in the artistic colourings of the decorations. The ceilings of the nave and transepts are divided into panelling with lines and delicately-tinted styles. In the centre of each panel there is a bold, floriated design in various shades of neutral colours on a soft vellum ground, all tending to elevate the structure. Under the ceiling there is a bold frieze created after the same manner. The walls are divided into two shades, the upper portion of which is in a neutral green. The lower portion is a rich terra-cotta, surmounted with an elaborate string course of good design in stronger colours than the fringe above. The principal portion of the ceiling is the panel over the chancel. It has been treated in a style that has rarely been attempted in this country. The chancel arch is supported with massive pillars, with capitals very rich in colour and ornately gilt. Over the capitals is an ornamental frieze in gold on a crimson ground. The upper portion of the apse wall contains many striking medallions representing the four doctors of the church, surrounded with elaborate scroll work and other decorations. The work has been under the supervision of Mr. W. H. Byrne, architect, Suffolk Street, Dublin.

GORLESTON.—The general contractors for the new hotel buildings, of which we give a description elsewhere, are Messrs. J. Downing and Son, of Norwich. The shops and terrace below have been built by Mr. J. F. W. Bray, of Great Yarmouth. The furnishing throughout has been in the hands of Messrs. Trevor, Page, and Co., of Norwich. The stoves and ranges, and hot-water service, &c., were supplied by Messrs. Johnson, Burton, and Theobald, of Norwich. The ornamental glazing and the decorative painting was entrusted to Messrs. J. and J. King and to Mr. W. R. Weyer, of Norwich. Messrs. Varity, of London, supplied the gas fittings; and Mr. A. R. Pank, of Yarmouth, the gas engine, boiler, and the gas fittings generally. The laundry fittings are from Messrs. T. Bradford and Co., and the stable fittings by the St. Pancras Iron Company. Mr. W. J. Baye acted as clerk of the works.

LEEDS.—Holbeck's share in Leeds improvement schemes promises to be fairly substantial. With building operations still proceeding in the outlying parts there is every likelihood of important developments in the near future. Internally, too, the signs of advancement seem good. The Holbeck and West Hunslet Sanitary Association are continuing their agitation for the opening up of what has now become known

as the Holbeck insanitary area—a group of streets and alleys in the heart of the populous district west of Meadow Road. So far as plans go there would appear to be no reason why, in course of time, Holbeck should not be transformed equally as well as East Leeds will probably be in a few years. The widening of Nineveh Bridge has paved the way for a new main road through the locality, and the proposed formation of a new street placing Sweet Street in direct connection with Victoria Road suggests still further possibilities. Again, whatever opinions may obtain regarding the institution of a theatre here, the substantial structure at the corner of Jack Lane and Meadow Road, now rapidly progressing, gives a decided air of importance to the neighbourhood.

PEEBLES.—The Peebles Hydropathic has just been opened. Built a dozen years ago or more at a cost of nearly £90,000, from designs by the late Mr. Starforth, Edinburgh, this building, externally and internally, presents a very handsome aspect. It is placed on an elevated situation to the east of the town, and with a southern exposure; it commands an extensive and varied view of the Tweed valley. Internally the house was originally constructed in the most modern fashion, and what experience showed it lacked has been supplied in the thorough overhaul it has received, at a cost of several thousands of pounds. The large public rooms open upon a wide corridor running from one side of the building to the other; and few finer rooms than the drawing-room, with its beautifully panelled plaster ceiling, will be found in any mansion in the country.

SHERINGHAM (Lincs.).—A new hotel has been erected at Sheringham. The hotel is built of red brick and white stone, with white brick Cossey ware dressings. Over the central entrance, which is approached by a flight of circular steps, are fine bay windows, with gable. At the north-east and north-west corners are octagon turrets, which finish up in the form of cupolas in copper, and surmounted by finials. On either side of the principal entrance, and between these two turrets, are bay windows. On the north-west side of the hotel is the winter garden, with its sun gallery, colonnade, and verandah, sheltered from cold winds, but always commanding a fine expanse of scenery towards the golf links and the Sheringham Hall woods. The main entrance of the hotel opens out into a lofty, airy and spacious central hall. To the right and left of this run wide corridors. That on the west side leads to the reading, smoking, and billiard rooms, that on the east to the dining and drawing rooms. The staircase is lighted with circular stained glass windows, with nautical representations of various epochs in English history. The first represents a vessel of the Viking period, the second of the Norman, and so on. The central window in the first flight represents the Royal Arms of England, and the central one in the second contains the Sheringham crest, two lobsters and a crab. On the first floor there is a well, with balustrades and four white columns, which look down into the central hall and adds to the ventilation and air-space of the building. On the first three floors the corridors run east and west, and near their extreme ends are intersected by shorter corridors on the three floors, for at the third the main staircase ends. Sanitation and ventilation have been studied to the utmost, and everything done that can add to the comfort and give satisfaction to visitors. The architect of the work has been Mr. Herbert J. Green, of Norwich. Messrs. J. Youngs and Son, of Norwich, were the contractors; while the entire furnishing and decorating has been carried out by Messrs. Trevor, Page, and Co.

The foundation stone of St. Patrick's new church, Lisburn, was laid last week.

The fifth ward of the Great Central Hospital—a fine circular room in a hospital regarded as a model institution—has been opened.

Correspondence.

APTITUDE IN CRAFTSMANSHIP.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Having a few hours to spare during last week, I paid a visit to the exhibition of work executed by children in the day and evening schools of the London School Board, at Hugh Myddleton School, Clerkenwell. The work of the manual training pupils in wood-work centres naturally mostly attracted my attention, appealing as it did to my regard for craftsmanship. Some of the work exhibited seems to me almost too well done and "finished" to be executed by boys, though I am told that all the work shown is done by the boys without the hands of the teacher touching the work, except to point out the faults. I can only say that I wish all the mechanics I have come across could work as well; if it were so, the craftsmanship of this age would rival the craftsmanship of those golden ages when everyone who did anything did it well. I believe it is not the aim of the London School Board to make the boys into craftsmen, but only so to teach them that they will do, with truth and accuracy, all that comes to them. I think, however, that any latent mechanical powers the boys possess must be developed by the training, and that we might gain something as a nation if we studied this in considering what trade or profession a boy should enter. Cannot somebody, such as the London County Council, hold an examination of those who are about to leave school, with the idea of apprenticing a few of the best in manual training to some trade? While objections might be raised to this proposal, it cannot be worse than what some charities do by apprenticing boys to trades for which they are utterly unsuited. In the case of poor boys it would be necessary to provide a few shillings weekly to compensate the parents for what they would lose by the scheme, but this would only be for the first year or so, and would not be more expensive than half the scholarships and exhibitions now offered, and which I am inclined to think sometimes help those who do not need it.—Yours very truly, "EVER ONWARD."

It is stated that one of the largest purchasers of Burne-Joneses at the moment is a South African millionaire, who has taken a great liking for his work, and telegraphs over unlimited commissions, without even having previously seen the pictures he acquires. He has purchased the "Mirror of Venus" amongst others.

The laying of the foundation stone of the William Terriss Memorial Lifeboat House in the Wish Tower Grounds at Eastbourne took place on Saturday week. The design for the lifeboat house has been prepared by Mr. W. T. Douglass, engineer and architect to the Royal National Lifeboat Institution.

The Dundee Institute of Architecture Science and Art have issued their syllabus of competition for the session 1898-99. Awards are to be given for the following:—Best free-hand sketch-book of architectural subjects; best measured drawing of any architectural subject; best work in modelling or carving; best sepia drawing; best design in colour; and for the best design for a public tramway shelter.

The Governors of the Royal South Hants Infirmary, Southampton, met to consider the question of a new wing to that institution, which is about to be built in commemoration of the Queen's Diamond Jubilee, and to which her Majesty subscribed. The Mayor's fund fell short of what was expected, and it was therefore determined to adopt a smaller scheme with fewer beds, but, to save this and to secure that it should be an adequate memorial of the Jubilee, a local resident offered to pay the cost himself over and above the Mayor's fund. The additional cost will amount to about £5000, and thus accommodation will be provided for fifty beds. This institution has already a wing as a memento of the Jubilee, and just recently a beautiful new pulpit has been supplied to the chapel.

Enquiry Department.

ON THE USE OF HALF-TIMBER WORK.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In a recent issue of your journal there appeared an article on "Design and Detail of Domestic Buildings," by John E. Newberry, A.R.I.B.A. The sections show the half-timber work carried up, with wood framing and three thicknesses of plaster. Would this be sufficient? The Model by-laws require the spaces between the timbers to be filled completely with brickwork, and to have at least 4½ in. brickwork at the back of same, properly bonded to the front portion. If brickwork were used, would the short joists, tusk tenoned into the main joists (as shown on section), be sufficient to carry the extra weight for the two floors in the gable end?—I am, Sir, yours sincerely,

"AN OLD SUBSCRIBER."

As to whether wood framing and three thicknesses of plaster are sufficient to keep out the weather and render a building warm, I say emphatically yes. Such a mode of construction has been adopted in buildings designed by the late Mr. J. L. Pearson, R.A., Mr. Norman Shaw, R.A., and Mr. T. E. Collcutt, and, if properly executed, is perfectly satisfactory. But in districts where the Model by-laws are in force, I would advise no one to attempt the use of half-timber work at all. The brick filling in and backing destroys its constructive principle altogether, and a solid 9 in. wall is more satisfactory than one with bits of timber built in it. Corbelling out such a wall on wood joists would be unconstructive, and a totally wrong use of materials.

JOHN E. NEWBERRY.

Under Discussion.

ARCHÆOLOGISTS IN LONDON.

The Bristol and Gloucester Archæological Society, in its recent exploration of London, visited many historic spots, linking them with Gloucestershire and Bristol history. The Lord Mayor received the Society at the Mansion House, and Sir Stuart Knill at the Guildhall. Viscount Dillon met the members at the Tower to describe its famous armour, and among the City Companies who received the Society were the Brewers, Mercers, Armourers, Drapers, and Barber-Surgeons. The whole week was amply filled up by visits to Lambeth Palace, Westminster, famous City churches, and other noted show places, ending with a call at Silchester on the return journey to the Western county, when Mr. St. John Hope described his discoveries of the Roman city. We referred to the principal excursions of the Society at some length last week.

The foundation stone of a new church at Clonakenny, Ireland, has been laid.

The foundation stone of the new Herts County Museum was laid last week.

A SPECIAL general meeting of the Architect's Benevolent Society was held in London last Wednesday week, when the following resolution, passed at the annual general meeting, was confirmed:—"That the words six pensions of not less than £20 each be substituted for three pensions of not less than £15 each in by-law 65."

NOTICE is given that the Guildhall Library will be closed for the repairs which have already been decided upon by the Court of Common Council. The repairs include the refurnishing and refitting of the reading-room, the redressing of the stonework of the building, the repainting of the interior, and the renovation of the exterior portions.

The London County Council has refused to contribute to the proposed widening of Lothbury. The scheme is not an ambitious one, but the widening, if it is effected, will materially relieve the congestion of traffic in the neighbourhood of the Stock Exchange. What is more, it will pave the way for the much-needed widening, later on, of Gresham Street.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERCYNON.—For the erection of twenty-four houses for the Mountain Ash Navigation Club. Mr. A. O. Evans, architect, Post Office Chambers, Pontypridd:—
J. Bowen ... £2,300 W. James ... £3,816
W. Small ... 4,173 James Howell's ... 3,768
Rees Francis ... 4,080 Jones and Jenkins ... 3,649
Dd. Thomas ... 3,966 Lewis Davies, Aber-
F. Mills ... 3,948 cynon* ... 3,528
*Accepted.

ABERGAVERN.—For the erection of temporary wooden buildings at the Monmouthshire Asylum. Mr. B. J. Francis, architect, 12, Cross-street, Abergavenny. Quantities by architect:—
Rees Bros. ... £4,729 0 0 Watkin Williams £3,550 0 0
Keay ... 4,465 0 0 Geo. Davies ... 3,545 0 0
D. Rowell & Co. ... 4,097 2 8 H. Gibbon ... 3,535 0 0
Humphreys ... 4,040 0 0 G. Martin & Son ... 3,495 0 0
T. S. Foster ... 4,175 0 0 T. J. Hawkins ... 3,420 0 0
Smith ... 3,993 0 0 Bowers and Co. ... 3,410 0 0
Harbrows ... 3,870 0 0 P. Gaylard, Bridg-
Mitson ... 3,675 0 0 end, Glam.* ... 3,400 0 0
Baker and Co. ... 3,550 0 0 ham* ... 2,631 12 0
*Accepted.

ASTON MANOR.—For additions to hospital. Upper Wotton, for the Urban District Council. Mr. H. Richardson, C.E., Council House, Aston Manor:—
R. M. Hughes ... £2,141 Reeves and Son ... £1,910
J. E. Moorhouse ... 2,062 W. Hopkins, Birming-
W. and A. Heaps ... 1,963 ham* ... 1,833
*Accepted.

BIRTLEY (co. Durham).—For the erection of Primitive Methodist chapels and schools. Mr. E. Clephan, architect, 8, Nicholas-chambers, Newcastle-on-Tyne:—
J. Bemley ... £3,492 11 0 Davison & Bolam,
W. Lodge ... 3,483 9 0 Birtley, co. Dur-
J. M. Braithwaite ... 3,389 6 0 ham* ... £2,631 12 0
T. Craven ... 3,310 11 8 *Provisionally accepted.

BOOTLE (Lancs.).—For the erection of an electric-light station, Elm-grove, for the Corporation. Mr. J. A. Crowther, Borough Engineer, Town Hall, Bootle:—
John Corkhill ... £7,261 Peter Tyson ... £7,000
Hughes and Stirling ... 7,150 Samuel Webster ... 6,450
J. Paterson and Son ... 7,037 Walter Musker* ... 6,598
*Accepted.

BRENTWOOD.—For additions to Sunday School buildings, for the Trustees. Mr. C. Pertwee, architect, Bank-chambers, Chelmsford. Quantities by Messrs. R. L. Curtis and Son, London-wall, E.C.:—
J. Smith and Son ... £1,038 F. J. Wilding ... £295
A. Brown and Son ... 1,023 F. Johnson ... 920
Silas Parmenter ... 1,000 Rogers & Robson, Brent-
Ernest West ... 968 wood (accepted) ... 857

BRYNAMMAN (Wales).—For additions to Siloam Chapel, and the erection of a vestry. Mr. Tracey, architect, Post-office, Glanamman, Carmarthenshire:—
Walters and Johns ... £1,120 0 D. Rees ... £1,293 0
J. Howells ... 1,319 14 John Morris, Bryn-
J. D. Howells ... 1,119 0 amman* ... 981 0
J. Williams ... 1,150 0 *Accepted.

CARDIFF.—For the erection of new hotel, stabling, &c., Lansdowne-road, Canton, for Messrs. W. Hancock and Co., Limited. Messrs. Veall and Sant, architects:—
W. Thomas & Co. ... £2,449 Lattey and Co. ... £5,968
Knox and Wells ... 6,325 Turner and Sons ... 5,898
C. C. Dunn ... 6,147 J. Allan ... 5,750
Shipton & Son ... 6,118 W. Symonds and Co.* ... 5,693
C. & F. Couzens ... 6,110
(All of Cardiff.)

*Reduced to £5,050 and accepted.

CARDIFF.—For the erection of new premises, Neville-street, for the trustees of the Riverside Conservative Club. Messrs. Veall and Sant, architects:—
E. R. Evans and ... Turner and Sons £2,598 0 0
Bros. ... 2,845 0 0 Knox and Wells ... 2,557 0 0
Lattey and Co. ... 2,793 0 0 Melhuish Bros.* ... 2,497 10 0
Mathias and Son ... 2,750 0 0 W. A. Walters
C. C. Dunn ... 2,673 9 9 (withdrawn) ... 1,980 4 5
W. T. Morgan ... 2,660 0 0 [All of Cardiff.]

*Reduced to £2,398 and accepted.

CARLISLE.—Accepted for the erection of the Newtown Mission Room. Mr. C. J. Ferguson, architect, 50, English-street, Carlisle:—

Building—J. and W. Baty	£360 0 0
Joinery—Thos. Lawson	430 16 6
Slating—C. J. Nanson	103 6 4
Plastering—S. Ferguson and Sons	133 0 0
Painting—R. S. Kirk	64 5 0
Plumbing—W. Anderson	74 6 8
Total	£1,365 14 6

[All of Carlisle.]

CARLISLE.—For erecting a warehouse, Victoria Viaduct, Carlisle. Mr. J. H. Martindale, architect, Viaduct Chambers, Carlisle. Quantities by the architect:—

Section No. 1.

J. and R. Bell	£2,076 12 6	Beaty Bros.	£1,597 0 0
B. Little	1,931 15 0	W. and H. David-	
Jas. Beatty	1,841 15 0	son*	1,389 13 10
J. Laing	1,681 0 0	[All of Carlisle.]	

*Accepted.

CHURCH (Lancs.).—For the erection of street works paving, &c., Blackburn-road, for the Urban District Council. Mr. W. E. Wood, Surveyor, Council's Offices, Church. Quantities by surveyor:—

Chadwick Bros.	£1,229 14 4	Executors of A.	
John Moore	1,083 3 9	Broadley	£983 18 1
W. H. Bury	1,083 10 9	Thomas Horrocks	972 4 4
George Adams, Os-		A. Lord (flagging	
waldtwistle*	998 2 11	only)	81 6 0

*Accepted.

CORK.—For dining halls, Cork Asylum. Messrs. W. H. Hill and Sons, architects, 28, South Mall, Cork:—
Patrick Murphy, Cork ... £2,097

DEVONPORT.—For alterations and additions to the "Royal Naval Arms," public-house, Devonport, for Mrs. Bosworthick. Mr. Edgar M. Leest, architect, 109, Fore-street, Devonport. Quantities by Mr. James Harvey, Courtenay-street, Plymouth:—

J. Good and Co. (Plymouth)	£1,689 0
J. H. Blackell (Plymouth)	1,497 0
J. H. Gregory (Devonport)	1,470 0
G. H. Smith and Sons (Devonport)	1,320 15
W. E. Blake (Plymouth)	1,249 0
J. Healy (Devonport)	1,160 12
S. Perkins (Devonport)	1,149 17
Jillard and Stevenson (Plymouth)	1,050 0

DEWSBURY.—For the erection of five shops and offices, New Bridge-street. Messrs. Holton and Fox, architects, Westgate, Dewsbury:—

Masonry—Wm. Scott and Sons, Dewsbury	£245 0
Joinery—Geo. G. Smith, Batley Carr	270 0
Plumbing—F. Newsome, Dewsbury	110 0
Slating—W. H. Thompson, Batley	53 0
Plastering—F. Richardson, Dewsbury	36 10
Ironwork—C. Bailey, Dewsbury	26 5
Total	£1,443 15

EALING.—For heating St. Saviour's New Church, Ealing. Mr. Geo. H. Fellowes Prynn, F.R.I.B.A., architect, 6, Queen Anne's Gate, Westminster, S.W.:—

Hadden and Sons, King's Cross	£585 8
John Grundy, London	467 0

Hot Air.

Hadden and Sons, King's Cross	396 10
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Hot Water.

Jones and Attwood, Westminster	466 0
Vanguard and Brown, London	414 0
Dargue, Griffiths, and Co., Liverpool	372 0
Womerton-Smith, Gray, and Co., London	361 4
Rosser and Russell, Charing Cross	263 17
Jones and Sons, London (accepted)	262 10

GUILDFORD.—For new dining-hall, kitchen, and laundry buildings, boiler-house, &c., at the Guildford Workhouse. Messrs. Peak and Lunn, architects, Guildford. Quantities by Messrs. Franklin and Andrews, 25, Ludgate-hill, E.C.:—

Johnson and Co.	£11,927 0	August 1, 1899
Higgs and Hill	11,680 0	Ten months
Kirk and Randall	11,537 0	May 31, 1899
Martin, Wells, & Co.	11,478 11	August 31, 1899
Peters and Son	11,280 9	December 20, 1899
Goddard and Sons	11,140 0	December 24, 1899
H. Hutchinson	11,120 0	July 31, 1899
Brown Bros.	10,789 0	December 25, 1899
Kingler and Sons	10,775 0	July 31, 1899
Mitchell Bros., Shal-		
ford (accepted)	10,700 0	November 30, 1899

HANLEY (Staffs.).—For additions to Trent Pottery, Hanley, for Messrs. Johnson Bros., Ltd. Messrs. R. Scrivener and Sons, architects, Hanley:—
T. Godwin ... £1,605 T. R. Yoxall ... £1,486
G. Ellis ... 1,529 J. Bagnall ... 1,447
H. R. Embrey ... 1,516 C. Corne, Hanley* ... 1,419
N. Bennett ... 1,488 *Accepted.

HANSLOPE.—For additions to schools. Mr. W. Hull, architect, 12, St. Giles-street, Northampton. Quantities by architect:—

W. Whitbread	£1,188	Fathers	£1,119
Woodford & Smith	1,125	Branson and Son	1,116
H. Martin, Northamp-		Slaymaker and Harlow	1,086
ton*	1,120	Wilson and Alright	950

*Accepted, subject to the approval of the Education Department.

LONDON.—For the erection of boundary walls and fences to the Whalebone-lane School site, for the West Ham School Board. Mr. William Jacques, Architect to the Board, 2, Fen-court, E.C. Quantities by Messrs. R. L. Curtis and Son:—

Battley, Son, and	£1,733 0	Gregar and Son	£1,397 0
Holness	1,705 12	Hosking	1,383 0
Noakes	1,570 0	Hearle and Farrow	1,383 0
Maddison	1,550 0	Fulcher	1,356 14
Sharpe	1,550 0	Reed and Son*	1,336 0

*Accepted, subject to the approval of the Education Department.

LONDON.—For new Receiving Wards at the Strand Workhouse, Silver-street, Upper Edmonton, for the Guardians of the Strand Union. Messrs. W. S. Cross and Kekwick, architect, 18, Outer Temple, Strand. Quantities by Mr. Bernard Swinstead:—

J. Jarvis and Sons	£2,598	H. Wall and Co.	£7,460
C. G. Hill	8,000	T. G. Sharphington	7,448
W. Lawrence	7,953	Merredew and Wort	6,335

LONDON.—For the partial reconstruction of the North-Eastern Hospital (Metropolitan Asylums Board). Messrs. A. and C. Harston, architects:—

Martin, Wells, & Co.	£139,725	Spencer, Santo, and	
Leslie and Co., Ltd.	121,145	Co., Ltd.	£114,975
W. Johnson and Co.,		McCormick & Sons	
Ltd.	118,349	Northampton-st., N.*	113,641

*Accepted.

LONDON.—For paving works in certain streets, Bethnal Green improvement scheme, for the London County Council:—

Bradshaw & Co.	£7,653 3 3	Val de Travers	
Brunswick Rock		Asphalte Pav-	
Asphalte Pav-		ing Co. Lim.	£8,961 6 6
ing Co.	7,550 5 9	W. Griffiths	6,738 16 5
W. Wadey	7,344 7 1	Trinidad Lake	
		Asphalte Co.	6,359 7

LONDON.—For sewerage, levelling, and ballasting new roads on the Fortis Green Estate. George H. Paine, architect:—

R. Jackson	£2,888	T. Adams	£2,494
C. W. Killingback and		W. Wadey	2,395
Co.	2,709	Williamson and Son	2,340
J. A. Dunmore	2,544	R. Ballard, Ltd.*	1,897

*Recommended for acceptance.

LONDON.—For alterations and additions to the "Cotten-ham Arms" public-house, Upper Holloway, for Mr. J. E. Sutton. Mr. A. E. Pridmore, architect, 2, Broad-street-buildings:—

Stevens Bros.	£2,055	Marchant and Hurst	£1,839
Lyle and Co.	1,970	King	1,790
Ditcham and Taylor	1,861	Thompson	1,773

LONDON.—For the erection of a cold storage warehouse, for the Imperial Lager Brewery Company, Limited, Tottenham. Mr. A. Paul MacAlister, architect. Quantities by Mr. E. Dermot Nixon, both of 9, Gray's Inn-square, W.C.:—

Coulson and Lofts	£15,485	Sindall	£13,416
A. Porter	14,243	Dove Bros.	12,845
Patman & Fothering-			
ham	13,451		

LONDON.—For erecting new premises on the sites of No. 2, Hansell-street, and 19, Jewin-street, E.C. Mr. Delissa Joseph, architect, 17 and 18, Basinghall-street, E.C.:—

Shillitoe and Sons	£5,000	Perry and Co.	£4,339
H. Lovatt	4,844	Allen and Sons	4,292
Brown, Son and Blom-		Bywaters and Sons	3,990
field	4,660	Mark Patrick & Sons*	3,964

*Accepted.

LONDON.—For decorative, heating, and sanitary works and general repairs at 26, Park-crescent, W. Mr. Delissa Joseph, architect, 17 and 18, Basinghall-street, E.C.:—

General	Contract	Extras
Vare Brothers	£2,415	£230 4
W. Callingham	2,498	270 0
Bywaters and Sons	2,445	594 0
Maple and Co., Ltd.	2,208	273 0
H. Hanks (accepted)	2,092	145 0

LONDON.—For alterations, additions, and fitting at the "Britannia" public-house, Church-road, Barkin, E., for Mr. W. G. Kitson. Mr. Fred. A. Ashton, architect, 177, Romford-road, Stratford, E.:—

Alterations, &c.	Fittings	Totals
H. Wall and Co.	£3,130	£1,120
J. and H. Cocks	3,082	1,098
A. E. Symes	3,006	1,069
W. G. Maddison*	2,914	1,075

*Accepted.

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GAS-WORKS MACHINERY.

By EDWARD ALFRED HARMAN, C.E.,
Gas Engineer to the Huddersfield Corporation.

INTRODUCTION.

GAS-WORKS machinery is in many respects so closely connected to several branches of engineering, as to make it somewhat difficult to distinguish it separately. The more prominent parts of the machinery have been made the subject of many valuable papers read before this society. This alone renders the idea of producing anything new upon the subject almost beside the question. It is not only the latest idea which is worthy of consideration, but older and well-tested systems. By careful consideration of these, improvements are effected which add materially to their efficiency and life. It has often been realised that by concentrated thought, designs which seemed incapable of improvement have yielded to the touch of ingenuity and adaptation. Under existing conditions of carbonising coal, many escapes of gas—such as are involved with the lifting of the purifier covers, and from open catch purifiers in connection with sulphate and other plants—are entirely unpreventable, while the smoke and steam add to the deteriorating influences. There is also a quantity of purifying material about the works, a portion of which is exposed to the atmosphere for the purposes of revivification. In addition there is a quantity of waste lime and other material frequently in course of removal. The unloading of coal, and the screening and loading of coke, also circulates a large quantity of dust and grit. An eminent chemist one day, in passing through a gas-works with the author, commented upon the objectionable odour he detected, and said he did not mind an equationable one. It is the inequationable gases that have their influence upon the machinery, as well as the others. Lime purification, and especially where the sulphur compounds in the gas are closely dealt with, necessitates the unloading of many thousands of tons of quicklime in the works, the fine dust from which is freely distributed. Gas-works machinery has to deal with numerous combinations of unpurified gases, acids, alkalies, gritty and impure water, oils and spirits. Some of the machinery is required to draw out hot coke from benches of ovens at a distance of from 3ft. to 4ft. from them; while the machines are subjected to all the influences of heat from the furnaces and material they are employed upon. The machinery, therefore, is not working under the same conditions as at other engineering works, where most of the influences named are absent. To meet these special requirements, necessity and experience have designed a whole collection of machinery, which possesses distinct features of interest and importance.

OBJECTS OF GAS-WORKS MACHINERY.

The extension of gas-works machinery is not merely an effort to "save another man," or to reduce working expenses. Apart altogether from the delights and fascination of invention, there is, or should be, the additional object of alleviating the more arduous and irksome work of those engaged. The lot of gas workers has been greatly improved by the adoption of machinery. Machinery reduces the actual unskilled labour on the works; but the manufacture and maintenance of it considerably increases the demand for skilled labour, which in itself is a great counterbalancing consideration for the labour market. The very existence of gas-works depends upon the advance and improvements made from time to time in its machinery and plant.

CARBONISATION.

Mr. John Brunton, a predecessor of the author's at one of the Birmingham gas-works some sixty years since, experimented with an ingenious process, which he patented, for continuous carbonisation. The bottom of the

retort was placed at an incline, and was possibly the precursor of the subsequent inclined retort systems. The coal was propelled in from one end in small charges, the resultant coke dropping out into a watertrough at the other. This system has been tried since at various works, under different names, but has not been permanently successful. The most recent attempt of continuous carbonisation is that known as the Yeadon revolving gas retort.

OPINIONS OF RETORT HOUSE WORK.

Gas-works operations are frequently considered as the most exhaustive class of labour. Retort house work is spoken of as though it were considerably harder in every particular than puddling furnaces. If a comparison could be drawn between the operations of match-making, phosphorous, chemical works, copper works, mill work, and gas-works operations, a different idea would at once prevail.

NOVELTIES.

Nearly every gas-works possesses novelties and ingenuities in machinery which will well repay examination. In many cases they consist principally of special adaptations to peculiar circumstances. At all events, one frequently learns from them what to avoid as well as what to adopt.

MAGNITUDE OF OPERATIONS.

Gas manufacture is often considered as a purely chemical operation, which, although largely true, does not altogether exhaust the subject. To illustrate the magnitude of the machinery required, a few figures bearing upon the subject will suffice. According to the Parliamentary returns of authorised gas undertakings in the United Kingdom, upwards of 12½ millions of tons of coal are carbonised annually; this produces eight million tons of coke, together with two million tons of tar and ammoniacal liquor, and 130,000 tons of sulphate of ammonia; while for the quenching of the coke three million tons of water have to be obtained and distributed. It is not simply the carbonising stages which have to be dealt with, but also the subsequent treatment of the various residuals and bye-products.

DEVELOPMENT OF GAS-WORKS MACHINERY.

While large gas-works are frequently found to be well equipped with machinery, there are many medium-sized and small works existing in which much remains to be done. At a not very remote date gas-works machinery was of the most meagre character; thanks, however, to the enterprise and ingenuity of members of this and kindred engineering societies, such rapid improvements and developments have been effected, that many large gas-works have machinery of considerable magnitude and importance. It is to the further employment and adaptation of machinery for all available purposes that gas undertakings have to look in the future for the extension of their operations. It necessarily follows that with such machinery in use, all kinds of lathes, shaping machines, and tools are required for their proper maintenance. Indeed, the author ventures to think that some of those engaged in what may be termed purely engineering works would be surprised to find the extent to which machinery is required and employed in gas-works.

FUTURE OF GAS-WORKS MACHINERY.

The rapid extension of carburetted water-gas plants (the gas from which can only be used sparingly), oil-gas plants, and the inclined retort system necessarily minimises the quantity of machinery required in gas-works; but whether these systems will continue to reduce the quantity remains to be seen, and can only be a matter of speculation.

EXHAUSTING PLANT.

The central, and most important parts of gas-works machinery are the exhausters, although they act in the capacity of pressure pumps as well. In the majority of works, the ascension pipes leading from the retorts have arch pipes at the top, which dip into a hydraulic main. In some few works, the dip pipes have been abolished, and a dry main substituted. In connection with the subject of exhausters it

may be of passing interest to deal with a common fallacy respecting the function of this little understood portion of the machinery. It is not infrequently supposed that it is the duty of the exhausters to draw away gas from the retorts; whereas the object is purely to reduce the seal upon the dip pipes themselves, and to draw away the gas from the hydraulic main alone, thus leaving room for the newly evolved gas to take its place. As an example of this reduction of seal, suppose a hydraulic main to have a dip pipe sealing to the extent of 3in. Upon the exhausters commencing duty on 2in. vacuum, the liquor in the hydraulic main is at once raised, whereas that in the dip pipe is depressed to but 1in. seal, and through this seal the gas bubbles as it is made, practically forcing its passage. It is absolutely necessary that the dip pipe should be always sealed, as if it becomes unsealed, the vacuum is at once put on the ascension pipes; and supposing the retort lid were open, this would admit of air being drawn up, composed by volume of eighty per cent. of a diluent gas—nitrogen. This would deteriorate the gas to an alarming extent, apart altogether from the danger of forming an explosive mixture. Not only so, but the unsealed pipe would prevent the other pipes in the retort bench having their seal proportionately reduced, hence they would receive undue back pressure, and commence blowing at the joints of the retort lids, &c. Heavy back pressure on the retort produces deposition of carbon on the sides of the retort. This is a heavy, hard, solid, stone-like substance, requiring to be either chipped off with strong bars, or consumed away by leaving the lids open, or by any other specially provided means. The deposition of carbon to the extent of 1in. upon the interior of the retort would seriously affect the heats and the fuel account. In the early days of gas making, exhausters were not used, the gasholders having to be counterbalanced by heavy weights, but the carbon nuisance became so great as to ultimately lead to the adoption of exhausters. Another evil of heavy back pressure is that the issuing gas, being unable to get away rapidly enough, is detained in the retort with the incandescent coke, and thereby becomes seriously decomposed. It is a common supposition that atmospheric air is deliberately drawn into the gas at the retorts through the exhausters. To assist purification at a later stage, it is sometimes found an advantage to admit a measured percentage of air, in order to utilise the 20 per cent. of oxygen (by volume) therein, for assisting the revivification of the oxide of iron in the purifiers, but on account of the deleterious effect of the nitrogen, it has to be used with the greatest possible care. In my works at Huddersfield, in preference to this, an extensive oxygen making plant is used, constructed under Brin's patents, and possessing many features of interest and importance. Supposing the dip pipes became unsealed when the retort lids were shut, the vacuum would be then upon the retorts direct, and as in the process of time these have cracks in them, the result of such vacuum would obviously be to draw the obnoxious furnace gases from the setting through the cracks, and hence into the gas mains. The producer gas contains usually about 24 per cent. of carbon monoxide, and 8 per cent. of carbonic acid gas, while the spent gases, which would probably be those to be drawn in, consist almost wholly of carbonic acid and nitrogen. Apart from the non-luminosity of such gas, the purification required to eliminate it would be disastrous to working expenses. In gas-works where the hydraulic main has been superseded by a dry main, a slight back pressure is also necessary on the retorts, or all the serious consequences mentioned would be liable to take place. Apart altogether from these consequences, anything like putting a vacuum upon the ascension pipes would have the inevitable result of drawing up small particles of coal dust and coke, and stopping them up with a hard, tarry substance. A further function of the exhauster is to force the gas which has been distilled in the retorts through the purifying and other apparatus of the works, and ultimately to raise the gasholders.

(To be continued.)

* A paper read before the Society of Engineers, on June 6th, 1898.

Builders' Notes.

A SINGULAR accident, resulting in injury to four workmen, occurred on the Great Western Railway at Carey Bridge, near Ross, Herefordshire. The bridge was under repair, and a crane used for raising girders, from some unexplained cause, fell over into the river Wye. The chain of the crane, flying back, smashed the woodwork of the bridge and injured four of the workmen.

SOME buildings forming part of the foundry of Messrs. Beaver and Dorling, Dewsbury, recently collapsed. The foundry lies between Northgate, Foundry Street, and Corporation Street, the last named a new thoroughfare in which a number of shops are to be erected on the north side. Mr. Scott, contractor, had men employed in getting out the earthwork for cellaring, and it is feared that the foundations of part of the foundry premises, which are very old, have been undermined. The workmen, alarmed by some timber cracking, got clear away, and no one was hurt.

THE great mill chimney at Grange, Mytholmroyd, has just been razed to the ground. Mr. Joseph Smith, the Lancashire steeplejack, had the work in hand. The chimney was about 60yds. high, and was estimated to weigh close on 2000 tons; it measured 11ft. square at the base, and was built in 1833. It had the most massive foundations of any chimney which Mr. Smith has ever tackled, and the workmen engaged upon the job have experienced no little difficulty in removing the stonework at the base. The walling of the chimney was 4ft. thick, and the lime which was used in its construction had set almost as hard as the stone itself. The method of demolition was as follows: Two-thirds of the circumference of the base was removed, bit by bit, and stout props of timber were inserted in place of the stone; the masonry taken out of the chimney was made into a sort of fireplace at the base; a bonfire of wood shavings, solid pitch, and a ton of the best and most inflammable coal was built close up to the wood props, and the whole was then saturated with a couple of barrels of paraffin and a torch applied. A huge crash soon afterwards announced the downfall of the chimney to anyone within a considerable distance, the stack falling ten minutes after the fire was lit.

It has long been recognised that Waterloo Station, alike in the interests of the public and of the South-Western Railway Company, must, sooner or later, be greatly enlarged. A few months ago there seemed every reason to believe that active steps towards the accomplishment of the improvement would not be delayed beyond the present year. The railway company had applied to Parliament for compulsory powers to acquire the land necessary for the much-needed improvement, and the House of Lords had favoured the scheme with its imprimatur. Unfortunately, the Company discovered afterwards that they had asked for and obtained more than they could, from a financial point of view, satisfactorily deal with. They, therefore, proceeded to cut down their plans in order to save some portion of the enormous expense which they found, as a result of preliminary investigations, would be involved in carrying out their original design of extending the boundaries of the terminus to Waterloo Road on the west, and to the southern side of Lower Marsh on the north. When the question came before a Select Committee of the House of Commons the other day, Mr. Pope, Q.C., opposed the modified scheme on the ground that it did not secure those improvements in regard to the public thoroughfares of the district which had led the County Council of London to let the former proposals pass without resistance. The Chairman of the Committee on the conclusion of the evidence and arguments intimated that the scheme was rejected, not only because it was not the same as the House of Lords had approved, but because it was in itself ill-considered and unsatisfactory.

Surveying and Sanitary Notes.

ONE of our Academicians, Mr. John William North, A.R.A., has been lately suffering in a twofold manner from the inefficiency of our law with regard to negligence, and also from taking a house without previously having sufficient information respecting its sanitary fitness. Illness had arisen from defective drains, not only on the premises themselves, but on those of his neighbours. However, his only remedy has been the foregoing of a year's rent, and having to pay his own costs, for the judge intimated very early in the case that the law was not on the side of the sufferer.

THE freehold of Nos. 175, 177, 179, and 181, Oxford Street, has been disposed of at the City Auction Mart by Messrs. Debenham, Tewson, Farmer, and Bridgewater. The property has a frontage of upwards of 68ft. to Oxford Street, covers a ground area of 7611 square feet, and is stated to be in the occupation of Messrs. S. J. Waring and Son, Limited, upholsterers, at a rental of £2120 per annum. The biddings started at £35,000, and were raised to £52,550, at which price the property was sold.

WE confess we do not understand why the London County Council exhibits such a sublime neglect of the stench which have of late made the Embankment abominable. They are, of course, worst in summer; but they are no new thing, and no light matter. They result undoubtedly from the jets of foulness forced up out of the gratings which ventilate the great low-level sewer. We are aware that that sewer is overworked. But we cannot believe that the resources of chemistry and engineering cannot provide any plan for sweetening the air. Surely there are not a few oxygen-producing patents which profess at least to deodorize, if not to purify, such outlets. We do not gather that any plan is even tried. The evil is gross, and has gone on for an intolerable while.

COMMERCIALLY useless and aesthetically hideous, the stretch of the Thames which extends upwards from Putney Bridge cries aloud for improvement, and some experts and representatives of the London County Council sailed up the river in a launch one day last week to examine the proposed site for a new lock. At first it was suggested that the additional dam, which is to keep the muddy foreshores of the higher stream covered at all states of the tide, should extend from a point almost opposite the outfall of the Wandale to the Middlesex shore near the Putney Railway Bridge. A second and better scheme puts the new lock in Battersea Reach, just below Wandsworth Bridge. Here the river is narrower, while the depth of the water is greater; and at a cost of some £230,000 it is calculated that within four years a lock could be made which would immensely assist navigation, and redeem the Royal river from the appearance of a marshy creek when the sea is out. The inspection was, in fact, convincing as to the necessities of an improvement, which ought to have been undertaken long ago.

A CONFERENCE convened by the Bermondsey Vestry has been held at Bermondsey for the consideration of the question of overcrowding and the housing of the working classes. As the result of a very lengthy discussion, in which it was contended that the mere enforcement of the by-laws with respect to houses let in lodgings, or the provision of cheap railway fares, would not effectually remedy overcrowding, the conference agreed to the following motion: "That the London County Council be asked to exercise their power under part 3 of the Housing of the Working Classes Act to provide accommodation within the County of London where required." The conference also passed a resolution calling upon the London County Council "to insert a clause in their General Powers Bill of 1899 to

enable Metropolitan Vestries and district boards to erect municipal dwellings under part 3 of the Housing of the Working Classes Act 1890." Other resolutions agreed to expressed the opinion that the London County Council ought to contribute to the cost of the dwellings erected by the local authorities, that the management and retention of such dwellings should be permanently vested in the local authority, and that in view of the heavy cost of land in London the local authorities should not be compelled to repay the cost of such land out of the income from the dwellings, and that the period for borrowing for buildings should be extended to 100 years.

MUNICIPAL improvements in Cuba will give much work in the future to engineers, says the *Engineering Magazine*. First among these is the drainage of the towns. The sewers, where they exist, are horrible things, built without the most elementary knowledge, in which the congested filth of years breeds disease and vile odours. Means of flushing them do not exist, and undoubtedly the more apparently filthy system of dumping house refuse and emptying substitutes for waterclosets along the kerbstone is less dangerous to health than such a sewerage system. To this abominable condition of the towns may be traced the prevalence of fevers, smallpox, and dysentery in Cuba. These diseases are uncommon in the isolated estates, and may be almost entirely eliminated from the island by giving attention in the towns to the most ordinary rules of sanitation. Another and equally important necessity in Cuban towns is water. Havana is pretty well supplied, but in most other towns there is very little or none beside the rainwater stored during the wet season in great stone cisterns beneath the houses. It is not that the people in general do not fully appreciate the necessity and luxury of water, but that the executive power is lacking. Taxes are raised for this purpose, and special taxes are sometimes levied to build new works or for coal to keep the pump going, but (and this may serve as instance of many transactions) the money is calmly banked to the credit of the officials, or the coal is bought and resold for their benefit. Water is wanted terribly in the towns during the dry season, and may easily be had. Excellent springs abound in most places, and small rivers of good water are fairly common.

AT last the governing authorities of Stonehouse seem to have overcome the difficulties which have arisen from time to time in connection with the provision of an ample supply of pure water to the township, and a scheme has been completed by which a continuous and an abundant service will be assured. In 1893 Stonehouse went to Parliament with a Bill of their own, and there they met both Devonport and Plymouth, each bent on the same errand. In the end Plymouth offered such advantageous terms to the township that the then Local Board ceased all further action in connection with their Bill. The offer was to supply 1,000,000 gallons of water a week for the first two years at 2½d. per thousand gallons, and 1,750,000 gallons per week at the same price for the next three years. This latter period has just expired, and it was originally arranged to inaugurate on that day a larger service of 500,000 gallons a day at 2½d. per 1000 gallons for sixty years, and afterwards 1d. per 1000 gallons in perpetuity, but unforeseen circumstances necessitated a postponement of the function. In addition to the foregoing arrangement, Stonehouse bought up Devonport's rights to supply water to the township, the price paid being £11,750; and the District Council also came to an arrangement with Plymouth that the Corporation should lay a special 12in. main at its own cost within its own borders, from the top of North Road to Eldad, the agreement being that Stonehouse shall pay something like £200 per annum, to be eventually reduced to £150, for this convenience. The junction of the main occurs at Eldad, and from that point a 12in. main has been carried through the principal streets of the town. In future, therefore, Stonehouse will be sure of a constant supply of excellent water.

PRACTICAL CARPENTRY AND JOINERY.*

BY GEORGE ELLIS.

(Continued from page xxix.)

IX.—WINDOWS.

ALTHOUGH there is great diversity in the design and construction of windows, they may for our purpose be classified under five heads, viz.:

(1.) **SASH FRAMES**, in which the sashes slide vertically in a cased frame; this class includes venetian frames, double frames, and two-light frames.

(2.) **CASEMENTS**, in which the sashes are hung on hinges to solid frames.

(3.) **PIVOT FRAMES**; these are solid frames with the lights hung on pivots, either vertically or horizontally, and include hospital frames.

(4.) **SLIDING SASHES**; in these the lights slide horizontally, either between beads or on metal rails, the frames are both solid and cased.

(5.) **SPECIAL FRAMES**; this will include frames coming under one or the other of the above definitions, but varied in arrangement for particular circumstances, such as bay windows, dormers, skylights, lantern lights, and double circular frames.

SASH FRAMES.—This is by far the commonest

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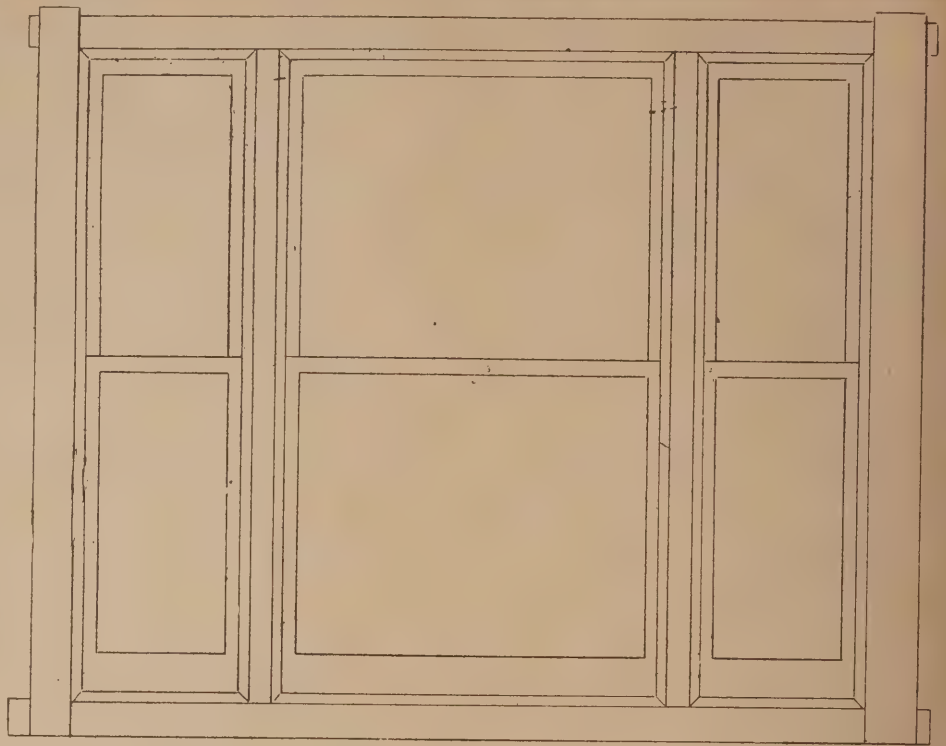


Fig. 136. ELEVATION OF SOLID MULLION VENETIAN FRAME.

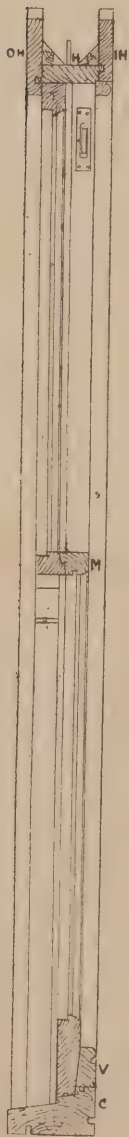


Fig. 132. VERTICAL SECTION.

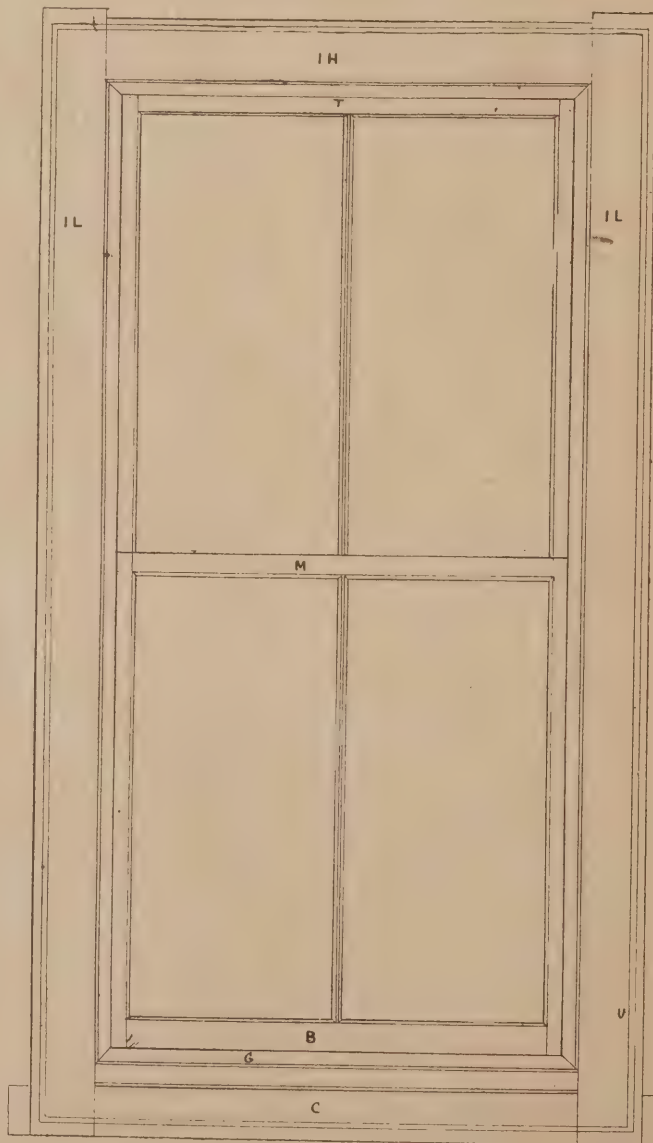


Fig. 133. INSIDE ELEVATION.
A DOUBLE HUNG CASED SASH FRAME.

form of window fitment, and, given sound material and fair workmanship, it fulfils perhaps better than any other kind the requirements of a window, that it shall admit as much light and air as possible, be wind and water tight, and easy of opening and closing; its principal fault being the difficulty of cleaning the outside. Fig. 132 is a vertical section, Fig. 133 inside elevation, Fig. 134 horizontal section of a double hung sash frame, with 1½ in. moulded sashes; other diagrams give details to a larger scale; the reference letters apply to the same pieces throughout. H is the head of frame; O H, outside head lining; I H, inside head lining; C, cill; V, ventilating slip; P, pulley stile; O L, outside lining; I L, inside lining; B L, back lining; P, parting bead; G, guard bead; T, top rail of sash; B, bottom rails; M, meeting rails; S, parting slip; U, lining groove. The method of constructing these frames is as follows:—The oak cill is worked to the section, trenches are cut at each end to receive the pulley stiles at the specified distance apart (which is usually in line with the reveal of the brickwork), into which they are wedged and nailed, the head is grooved to correspond to the cill and nailed on the top ends of the pulley stiles. Then the linings are nailed on each side of the frame; these are grooved on the undersides, as shown in the detail sketches, to receive tongues, worked on the pulley stiles and head of frame, and on the outsides, to receive the jamb linings. It will be noticed that the outside lining overhangs the pulley stile about ¼ in., forming a fence for the top sash to work against, the inside lining is kept flush with the face of the pulley stile, so that the sashes may be got into their places, and afterwards the guard beads are nailed or screwed into position inside. The two sashes are kept apart by the ¼ in. parting beads fitted into grooves in the middle of the pulley stile, forming with the guard beads and the outside linings two paths, in which the sashes move. The back lining is nailed to the back edge of the outside lining, and its other edge fits into a groove in the inside lining; this allows it to shrink without splitting. These linings and the pulley stile form the boxing for the weights, which are separated by a thin strip, hung freely from the head. Access to the weights for the purpose of hanging or rehanging is obtained by the pocket cut in the lower end of the pulley stiles; the hole is covered by the pocket-piece, kept in position by the beads.

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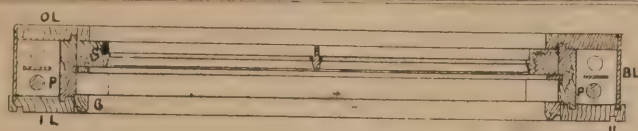


FIG. 134. —HORIZONTAL SECTION. A DOUBLE HUNG CASED SASH FRAME.

Two methods of cutting these are shown in Fig. 138, the one at A being preferable, where the pocket is in the middle of the stile, as thus the linings can be nailed throughout the length of the pocket. The ventilating piece shown at V, Fig. 132, is notched between the stiles before the linings are fixed, and the bead stuck on its top edge mitres with the guard beads; the purpose of this piece, as its name implies, is to afford ventilation by permitting of the raising of the bottom sash nearly clear of it, and thus getting a space of equal size between the meeting rails, through which a current of air can pass without down

could be cut at one operation from a 9in. board, and still afford ample room for the weights.

DOUBLE SASH FRAMES are used principally in banks and offices when it is desired to deaden the sound of outside traffic. They consist of two sets of sashes parallel to each

the hanging of the two outside pairs of sashes, and makes the head of the frame do duty for a lintel, discharging arches, of course, being out of the question. Figs. 136-137 illustrate a frame of this description, the two middle sashes being hung, and the outside ones fixed. The cords for the middle sashes are carried over pulleys in the top end of the mullions, across the head of the side openings, to the pulleys in the boxings, which, in this case, have to be kept close up to the head. The cords are concealed by a cover bead, and the top rail of the side sash, which is grooved to receive it. Figs. 138-139 show a cased frame for a large opening. In this all the sashes are hung;

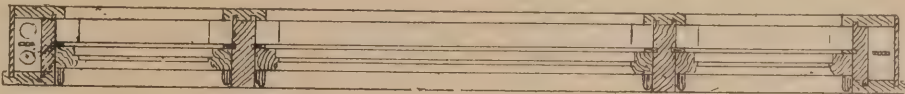


FIG. 137. PLAN OF SOLID MULLION VENETIAN FRAME.

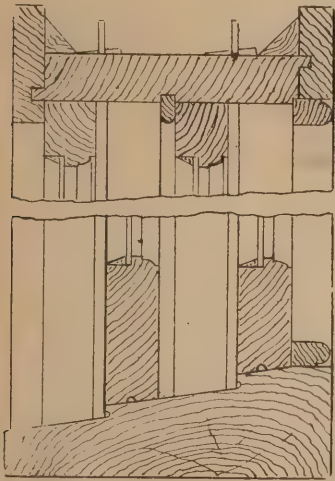


FIG. 135. DOUBLE WINDOWS. VERTICAL SECTION.

draught. The guard beads should always be rebated in, as shown at Fig. 135, to prevent them binding the sash. It often happens that in drawing up specifications of this and similar fittings sufficient attention is not given to the market sizes of stuff, and much trouble and waste of material is caused to the builder without any corresponding advantage to the client; for instance, it may be required that 5in. linings be provided for frames with 1½in. sashes. Now this means that only one lining can be cut from a length of 9in. board, and the piece cut off is probably wasted, whilst if shown as in the drawing, Fig. 134, a pair

other, working in the same frame; which is similar to an ordinary frame, with the exception that the cillhead and pulley stiles are wider than usual. Fig. 135 is a broken vertical section through a double frame.

A sash frame divided into two openings by a mullion is called a two-light frame.

and, to keep the mullions as narrow as possible, one weight is made to do duty for two sashes, accomplished in this manner: A pulley is fixed to the top end of the weight, and the cord is taken around this, over the axle pulleys, to the sashes on each side of the mullion. By this means four weights are made to balance

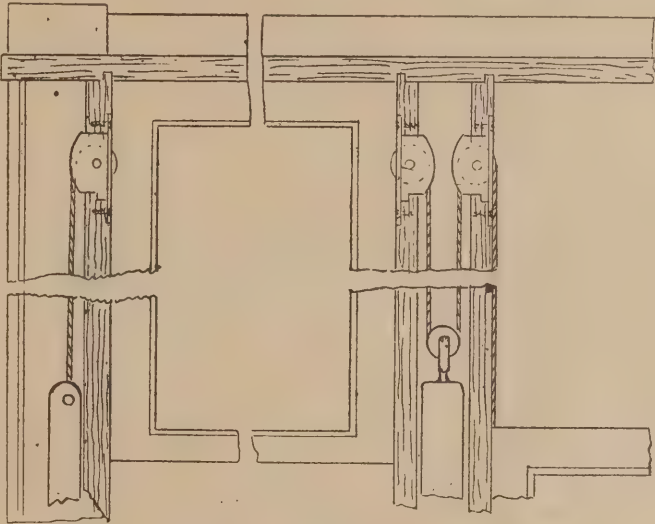


FIG. 138. SECTIONAL ELEVATION OF CASED VENETIAN.

VENETIAN FRAMES are sash frames divided into three or more openings by mullions, solid or cased, according to the size of the frame. These are great favourites with the suburban speculative builder, as, by their use, he saves

three sashes, in place of six required by the ordinary method. When sashes are hung in this way they must be about equal in size, otherwise the lighter one will be overbalanced. A piece of cork inserted in the sash-stile will, however, counteract this to some extent.

(To be continued.)

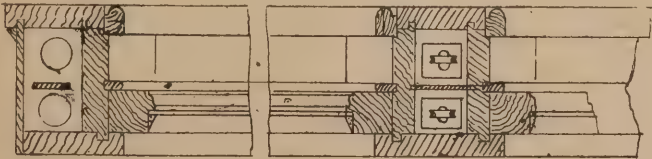


FIG. 139. PART PLAN OF CASED VENETIAN.

A PROPOSAL has been made to construct a light railway with a junction at Hurstbourne on the London and South-Western Railway. The line is to proceed through Bourne, Hurstbourne, and Tarrent to Grafton or Bedwyn stations, near Savernake Forest.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
ly 30	Cardernock—Rebuild Inn	.....	G. Armstrong, 24, Bank-street, Carlisle.
" 30	Chelmsford—Electric Light Station	.....	F. Whitmore, 17, Duke-street, Chelmsford.
" 30	Great Harwood—Block of Offices	Urban District Council	Briggs and Wolstenholme, Richmond-terrace, Blackburn.
" 30	Halifax—Two Houses	.....	T. Lister Patchett, George-square, Halifax.
" 30	Kettering—Greenhouse	Urban District Council	T. R. Smith, Market Hill, Kettering.
" 30	Newtownards—Dispensary, &c.	Guardians	T. Ross, 1, Lombard-street, Belfast.
" 30	Ramelton—Creamery	Co. Agricultural Dairy Society	Mr. M'Laughlin, The Bridge, Ramelton.
" 30	Stranraer—Chimney Stalk	.....	P. Stewart, Gasworks, Stranraer.
g. 1	Drumragh—Additions to Church	.....	J. L. Donnelly, 8, Castle-street, Omagh.
" 1	Lochmaddy—Class Room	School Board	A. McElfrish, Lochmaddy.
" 1	Shaw—Baths	Crompton Urban District Council	Wild, Collins, and Wild, 15, Clegg-street, Oldham.
" 1	South Uist—Class Room	School Board	A. McElfrish, Lochmaddy.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Aug. 2	London, W.C.—Alterations to Workhouse	Strand Union	Cross and Kekewick, 18, Outer Temple, E.C.
" 2	Bletchley—Two Cottages and Shop	Co-operative Industrial Society Limited	A. E. Wade, 1, Albert-street, Bletchley.
" 3	London, E.C.—Convenience	Shoreditch Vestry	J. R. Dixon, Town Hall, Old-street, E.C.
" 3	Stranorlar—Five Cottages	Union	G. M. Loughlin, Workhouse, Stranorlar.
" 3	Hampton Wick—Office Repairs, &c.	Urban District Council	J. N. Horsfield, Surveyor, Hampton Wick.
" 3	Ulverston—Lodge, &c.	Guardians	J. W. Grundy and Son, Ulverston.
" 3	Maxey—Additions to School	School Board	J. G. Stralabrass, North-street, Peterborough.
" 4	Stoke Damerel—Additions to Infirmary	Guardians	H. G. Luff, 64, Chapel-street, Devonport.
" 5	Nottingham—Workhouse, &c.	Guardians	A. Marshall, King-street, Nottingham.
" 6	Staple Hill—Police Station	Committee	M. H. Medland, 15, Clarence-street, Glasgow.
" 6	Clacton-on-Sea—Cottage Hospital		J. W. Martin, Station-chambers, Clacton-on-Sea.
" 10	Broughton—Bridge	Wrexham Rural District Council	J. Strachan, Crispin Lodge, Wrexham.
" 13	Burnley—Wards		S. Keighley, Nicholas-street, Burnley.
Sept. 19	Swausa—Board School	School Board	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
No date.	Belfast—Alterations to Shops, &c.	J. Hollywood	D. M. Cooper, 23, Donegal-place, Belfast.
"	Brighton—Addition to Schools		J. Norton, Alliance-chambers, Sheffield.
"	Sugs—Repairs to Church		Sugs Vicarage.
"	Leeds—Schools	School Board	W. Packer, School Board Offices, Leeds.
"	Llangennech—Villa		Davies and Son, Llanelly.
"	Ponfardulais—House and Shop		Davies and Son, Llanelly.
"	North Rode—Additions to School		T. Brealey, Piccadilly-buildings, Hanley.
"	Southend-on-Sea—Chapel		Goodchild and Sons, 81, Finsbury-pavement, E.C.
"	Stamford—Furniture Storerooms		T. J. Ward, Stamford.
"	Thetford—Vestry		A. J. Lacey, 6, Upper King-street, Norwich.
"	Wansford—Alterations to House, &c.		J. C. Traylen, 16, Broad-street, Stamford.
"	Stoke-on-Trent—Six Shops	Town Council	Lynam and Co., Stoke.
"	Gateshead—Hotel		T. E. Davidson, 33, Grainger-st. West, Newcastle-on-Tyne.
"	Alston—Schools and House		T. E. Davidson, 33, Grainger-st. West, Newcastle-on-Tyne.
"	Tasburgh—Additions to National Schools		A. J. Lacey, 6, Upper King-street, Norwich.
"	Coppull—Addition to School		Heaton and Ralph, King-street, Wigan.
"	Stanley—Alteration to Hotel		J. Oswald, 33, Mosley-street, Newcastle-on-Tyne.
"	Burn Cross—Additions to School	Ecclesfield School Board	G. A. Wilson, Harkhead-chambers, Sheffield.
"	Sharnbrook—Additions to School House	School Board	H. Young, Maitland-street, Bedford.
ENGINEERING—			
July 30	Hunstanton—Construction of Gasholder	Urban District Council	Stevenson and Burstal, 33, Parliament-street, Westminster.
" 30	St. Thomas—Gas Engines	Urban District Council	S. Churchward, Council Offices, St. Thomas-the-Apostle.
Aug. 30	Leyland—Outfall and Filtration Works	Urban District Council	J. Westley, Leyland.
" 1	Rothsay—Harbour Extension	Harbour Trustees	J. E. Thomson, 5, High-street, Rothsay.
" 1	Athy—Water Supply	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 1	Cairo—Bridge		Inspector of Irrigation, Second Circle, Cairo.
" 1	Haddington—Bridge	Commissioners	Belfrage and Cairns, 1, Erskine-place, Edinburgh.
" 2	Ryde—Waterworks	Corporation	C. Mathew, Town Hall, Ryde.
" 4	Bradford—Supply Cylinders, &c.	Corporation	J. Watson, Town Hall, Bradford.
" 4	Ilkeston—Pumping Engines	Town Council	H. J. Kilford, Town Hall, Ilkeston.
" 4	Skipton—Waterworks	Rural District Council	A. Rodwell, Skipton.
" 6	Ashton-in-Makerfield—Waterworks	Urban District Council	J. W. Liversedge, Bryn-street, Ashton-in-Makerfield.
" 6	Stowmarket—Sewage Pumping Machinery	Town Council	J. Taylor and Sons, 27, Great George-street, Westminster.
" 8	Glasgow—Supply and Erect Crane	Clyde Navigation	G. H. Baxter, Glasgow Harbour.
" 8	Sedgley—Heating Apparatus	School Board	A. E. Greenway, 1, Church-street, Coseley.
" 10	Alton—Supply Road Rollers, &c.	Rural District Council	M. H. Moss, Town Clerk, Alton.
" 10	Barnford—Reservoirs, &c.	Rural District Council	Sterling and Swann, Town Hall, Chapel-en-le-Frith.
" 15	Valetta, Malta—Bogie Tank Engine		Crown Agents for the Colonies, Downing-street.
No date.	Aberdare—Ventilating Fan, &c.		Powell Duffryn Coal Co., Aberdare.
"	Southowram—Sink Shafts		Jackson and Fox, 22, George-street, Halifax.
IRON AND STEEL—			
Aug. 2	Ottawa, Canada—Supply of Steel Rails		L. H. Jones, Dept. of Railways & Canals, Ottawa, Canada.
" 3	Salford—Supply of Cast-iron Columns	Gas Committee	Gas Engineer, Bloom-street, Salford.
" 23	Coolgardie, Australia—Steel Pipes	Government of Western Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
ROADS—			
July 30	Usk—Paving Works	Urban District Council	T. Boes, Surveyor, Usk.
Aug. 1	Chepstow—Footway, &c.	Urban District Council	F. Feather, Council Offices, Chepstow.
" 2	Wandsworth—Wood Paving	Board of Works	Surveyor's Office, 153, High-street, Putney, S.W.
" 2	Wembley—Street Works	Urban District Council	C. L. Whitehead, Wembley.
" 2	Penzance—Wood Paving		G. H. Small, Public Buildings, Penzance.
" 2	Walsall—Road Works	Corporation	Borough Surveyor, Bridge-street, Walsall.
" 2	Mansfield—Road Works	Corporation	F. Vallance, White Heart-chambers, Mansfield.
" 3	Hampton Wick—Tar Paving	Urban District Council	J. N. Horsfield, Hampton Wick.
" 3	Aldershot—Street Works	Urban District Council	Surveyor of the Council, 126, Victoria-road, Aldershot.
" 3	Greenwich—Paving	Board of Works	Offices of the Board, 141, Greenwich-road, S.E.
" 4	Ashton-in-Makerfield—Supply of Granite	Urban District Council	J. W. Liversedge, Ashton-in-Makerfield.
" 6	Slough—Street Works	Urban District Council	Surveyor to the Council, Mackenzie-street, Slough.
No date.	Hamilton—Street Works	Lanark County Council	J. Clarke, 84, Quarry-street, Hamilton.
"	Luddenden Foot—Paving	Urban District Council	H. Siddall, Luddenden Foot.
SANITARY—			
July 30	Banbury—Sewers	Town Council	Borough Surveyor, Banbury.
" 30	Hemsworth—Sewer	Rural District Council	Surveyor to the Council, Hemsworth.
Aug. 2	Tottenham—Sewers	Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
" 3	Polegate—Drainage Works	Rural District Council	J. Huxley, Winchester House, Hailsham.
" 5	Easingwold—Sewers	Rural District Council	F. J. H. Robinson, Town Clerk, Easingwold.
" 8	Holytown—Drainage Works	District Committee	Crouch and Hogg, 175, Hope-street, Glasgow.
" 8	Warkworth—Sewerage Works	Rural District Council	H. W. Walton, Alnwick.
No date.	Wigton—Drainage Works		Oliver and Dodgshen, 5, Lowther-street, Carlisle.
PAINTING AND PLUMBING—			
July 30	Upton—Painting Asylum		H. Beswick, Newgate-street, Chester.
Aug. 1	Shaw—Painting Council Offices	Crompton Urban District Council	J. H. Mills, Town Hall, Shaw.
No date.	Leeds—Cleaning and Renovating Church		J. T. Clarke, Baffin Cottage, Long-road, New Wortley.
"	Whittington—Painting School's, &c.		J. J. Creed, Whittington.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition, Corporation.
" 16	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Newton Wade, Clerk, 39, Dock-street, Newport, Mon.
" 17	Pontyvaun—County School (£2000 limit)	£5 (merged)	Glasgow Corporation.
" 31	Glasgow—City Improvements	£100, £50, £25	J. D. Marwick, Town Clerk, City-chambers, Glasgow.
" 31	Glasgow—City Improvements between King-street, City, and the New-Wynd.	£100, £50, £25	
" 31	Stockholm—City Railway Stations and Junctions	£656, £438, £219	Consulate General, 27, Great Winchester-street, E.C.
Oct. 3	Liverpool—New Buildings for Royal Institution	£52 10s., £21	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Godalming—Football Stand (150 seats—£150 limit)	£3 3s.	Secretary, Recreation Club, Godalming.
" 3	Leamington—Free Library and Technical Institute	£105 (merged), £52 10s.	H. Consett Passman, Town Clerk, Leamington.
" 3	Rotherham—Extension Baptist Schoolroom (£600 limit)		A. Crowcroft, Clifton-crescent, South Rotherham.
" 3	Plymouth—Tavistock-street Buildings (no Assessor)	£250	J. H. Ellis, Town Clerk, Plymouth.

Property and Land Sales.

Sale Days for the Year 1898.

MESSRS. FAREBROTHER, ELLIS, EGERTON, BREACH, GALSWORTHY, and Co. beg to announce that the undermentioned dates have been fixed for their AUCTIONS of Freehold, Copyhold, and Leasehold ESTATES, Reversions, Shares, Life Interests, &c., at the AUCTION MART, Tokenhouse-yard, E.C.

Other appointments for intermediate Sales will also be arranged.

Thursday, July 28.	Thursday, Nov. 10.
Thursday, Sept. 22.	Thursday, Nov. 24.
Thursday, Oct. 13.	Thursday, Dec. 1.
Thursday, Oct. 27.	Thursday, Dec. 15.

Messrs. Farebrother, Ellis, and Co. publish in the advertisement columns of The Times every Saturday a list of their forthcoming Sales by Auction. They a so issue from time to time schedules of properties to be let or sold, comprising landed and residential estates, farms, freehold and leasehold houses, City offices and warehouses, ground-rents, and investments generally, which will be forwarded free of charge on application.—No. 29, Fleet-street, Temple-bar, and 18, Old Broad-street, E.C.

ABBEY-WOOD.—Freehold Building Land and Leasehold Premises in this popular district, near Woolwich.

FAREBROTHER, ELLIS, EGERTON, BREACH, GALSWORTHY, and Co. will SELL by AUCTION, at the Mart, London, E.C., on THURSDAY, JULY 28th, 1898, at TWO o'clock precisely, the above-mentioned PROPERTIES, comprising about 23 acres of FREEHOLD LAND adjoining Abbey-wood Station on the North Kent line, possessing a frontage of several hundred feet to the high road, and especially suitable for the erection of manufacturing premises; also a Leasehold Property of about 14 acres, with house and buildings, known as Old Park, Bostall, adjoining the well-known Bostall Heath and Woods.

Particulars of sale may be obtained of Messrs. ROBBINS, BILLING, and Co., Solicitors, Bank-chambers, Nos. 218-221, Strand, W.C.; at the Auction Mart; and of Messrs. FAREBROTHER, ELLIS, and Co., 29, Fleet-street, Temple-bar, and 18, Old Broad-street, E.C.

SOLD.—NORTH-FLEET.—Freehold Cottages, known as Nos. 13 to 23 (odd numbers), Gordon-road, near Gravesend. Let at weekly rents amounting to £93 12s. per annum.

MESSRS. FAREBROTHER, ELLIS, EGERTON, BREACH, GALSWORTHY, and Co. beg to announce that this desirable FREEHOLD INVESTMENT WAS DISPOSED OF at their Auction Sale on Thursday last.

No. 29, Fleet-street, Temple-bar, and 18, Old Broad-street, E.C.

Westgate-on-Sea, proverbially one of the healthiest towns on the English coast, 1½ hours' journey from London.—Valuable sites in choice positions, suitable for the erection of marine residences.

MESSRS. ROGERS, CHAPMAN, and THOMAS (in conjunction with Mr. R. Temple) will SELL by AUCTION, at the Station Hotel, Westgate-on-Sea, on WEDNESDAY, AUGUST 31st, 1898, at THREE p.m. precisely, in lots, several PLOTS of LAND, commanding sea views, and others suitable for erection of detached and semi-detached residences of good character; also a few shop plots. Favourable opportunities are offered to gentlemen desirous of building to their own tastes in a select seaside resort, with excellent bathing, pure water, good train service, sheltered gardens, and public promenades. Arrangements can be made for payment by instalments.—Plans, particulars, and conditions of sale of Messrs. FARRER and Co., Solicitors, 66, Lincoln's Inn-fields, W.C.; of Mr. R. Temple, Estate Office, Westgate-on-Sea; and of the AUCTIONEERS, 50, Belgrave-road, South Belgravia, and 78, Gloucester-road, South Kensington.

Longbridge-road Estate, Barking.

Remaining Portion, at low reserves, to close the Estate. **MR. JOHN H. BETHELL** will SELL by AUCTION, at the PUBLIC OFFICES, East-street, Barking, on THURSDAY, JULY 28th, 1898, at 7.30 o'clock in the evening precisely, 115 lots of valuable FREEHOLD BUILDING LAND, including ten shop plots, with frontages to Longbridge-road, Fanshawe-avenue, and Montague-avenue. Possession on payment of a deposit of 10 per cent., balance payable in five years. Free conveyances. The land is free title and land tax. The estate is situated in a good position, adjoining the Public Recreation Ground and Barking Railway Station, from whence there is a good service of trains to the City. The roads are made, sewered, and kerbed, and the subsoil is a deep bed of gravel. There is a large demand for houses, which let and sell very readily.

Particulars, plans, and conditions of sale to be obtained of Messrs. SAVERY and STEVENS, Solicitors, 2, Brabant-court, Philpot-lane, E.C.; or the AUCTIONEER, 31, Liverpool-street, E.C., and Estate Offices, Upton Park, E.

Auction Sales, 1898.

MR. GEORGE BRINSLEY will hold his Monthly AUCTION SALES, at the MART, Tokenhouse-yard, E.C., for the year 1898 on the following days:—

Wednesday, July 20.	Wednesday, Oct. 19.
Wednesday, Aug. 24.	Wednesday, Nov. 16.
Wednesday, Sept. 21.	Wednesday, Dec. 14.

Landed Estates, Town and Suburban Houses, Building Land, Ground Rents, Business Premises, Reversions, Shares, and other Properties for absolute Sale, will be included in these sales on reasonable terms, which can be fixed beforehand if so desired.

Auction and Survey Offices, 30 and 31, New Bridge-street, Ludgate-circus, London, E.C. Established 1852. Telephone Number, 661, Bank. Telegrams, Bridging, London.

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E.

R. I. B. A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

ARCHITECTURAL INSTITUTE and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence, personally or in residence. Fourteen first places.—G. A. T. MIDDLETON, 19, Craven-street, Strand, W.C.

MARBLE.—Victoria or Cork Red, in blocks, from Viscount Middleton's quarries.—For sizes and prices at nearest depot, apply to J. FENROSE FITZGERALD, Estate Office, Midleton, co. Cork.

TO BUILDERS.—The FREEHOLDER of a large Suburban Estate (S.W.) wishes to meet with One or Two BUILDERS accustomed to building good class suburban property of from £60 to £120 a year rental. Main road; pretty wooded sites for houses; plenty of ground to each plot, several having tennis lawns; main drainage; cricket and tennis clubs and three golf courses within a mile; eight miles from Royal Exchange; some shop plots adjoining railway station on main road. The land will be SOLD or LET with restrictions; and advances can be had. Unquestionably one of the best things going at the present time for the right man.—Freeholders' Surveyors and Architects, Messrs. CHESTERTON and SONS, 51, Cheap-side, E.C. (Telephone, Bank 4466).

BUILDING LAND TO BE LET or SOLD. PALEWELL PARK, EAST SHEEN. Liberal Finances. Gravel soil. Roads made and curbed. Four minutes' of Mortlake Station. Thence frequent trains to Waterloo, Clapham Junction, &c. Apply, Estate Surveyor, WILLIAM HUNT, Douington House, Norfolk-street, Strand.

APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

WANTED, CLERK and TIMEKEEPER for the Building Trade. Must have knowledge of same. Used to prices, checking accounts, materials, &c.—Apply, 3, Bellevue-terrace, Cheriton, Folkestone. 1

WANTED, capable ASSISTANT well up in theatre and public work, details, and quantities. State age, salary, experience, &c., to "Auros," care of BUILDERS' JOURNAL. 1

COSTING CLERK REQUIRED, accustomed to Builder's or Engineer's office. Must be quick at figures. One with a knowledge of architectural drawing preferred.—Address, stating age, salary expected, with copies of testimonials, to Box 782, BUILDERS' JOURNAL Office. 1

ASSISTANT.—WANTED (immediately) a competent ASSISTANT, accustomed to supervising and measuring up paving, builder's and general jobbing work, thoroughly well acquainted with London prices and used to checking accounts.—Apply, by letter, immediately, inclosing copies of recent testimonials, stating experience and salary required, to the ENGINEER, Public Health Department, Guildhall, London.

ARCHITECT'S ASSISTANT WANTED. Must be good at details.—State age, experience, and salary, WAITELEGG and WHITTAKER, Brazennose-street, Manchester.

JUNIOR ASSISTANT or IMPROVER WANTED in Architect's Office.—Write, stating terms and full particulars, to GORMOUR CUTBERT, 83, Queen-street, Cheapside, E.C.

LAND SURVEYOR'S ASSISTANT REQUIRED. Age about 25. Must be an accurate and reliable surveyor. Permanency for suitable man.—Reply, stating age, experience, and salary, to Messrs. FLOCKTON, GIBBS, and FLOCKTON, 15, St. James-row, Sheffield.

APPOINTMENTS WANTED.

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YOUNG ARCHITECT, A.R.I.B.A., DESIRES to ASSIST others in the PREPARATION of DRAWINGS at his own office. G. SCORER, 28, Newman-street, W.

AS ARCHITECT'S JUNIOR ASSISTANT, age 17. Shorthand, tracing, colouring, &c.—"A. D.," 19, Vicarage-road, Willesden, N.W. 1

GENERAL FOREMAN, disengaged July 23rd, seeks RE-ENGAGEMENT. Joiner by Trade. Aged 49. Thoroughly practical. Testimonials and references excellent. Preference given to management of country job.—G. ANDREWS, Yateley Hall, Blackwater. 1

ESTATE AGENT'S CLERK desires BERTH in Builder's or Architect's Office. Good at tracing and designing.—Address H., 12, St. John's Hill, Clapham Junction. 1

SURVEYOR'S or ARCHITECT'S JUNIOR ASSISTANT desires ENGAGEMENT in South of England, south-west preferred. Can abstract and bill. Good draughtsman.—E., Tucker's Library, Esplanade, Weymouth. 1

ARCHITECT and SURVEYOR'S GENERAL ASSISTANT (24) DISENGAGED. Nearly seven years' first-class experience in London and the provinces. Thoroughly reliable and competent. Especial experience in Poor Law and hospital work. Excellent references.—R., 47, Cotleigh-road, West Hampstead, N.W.

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(Adjoining Holborn Town Hall.)

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HIGHEST AWARDS.

ALBION CLAY COMPANY LIMITED.

SOLE MANUFACTURERS of the



"GRANITIC STONEWARE" Pipes.

TRADE MARK.

All the "Granitic Stoneware" Pipes are made from "Stoneware" Clays, of which we are the Sole Proprietors. The Clays are carefully selected and blended to insure a hard, dense, **impervious and imperishable** body, specially adapted for **Sanitary** purposes. The Pipes have a "**toughness**" as opposed to "**brittleness**," which is not possessed by any other Stoneware Pipes. They have been proved to withstand the highest crushing and bursting pressures under tests by Kirkaldy and other authorities at home and abroad. They are made by the most improved Patent Machinery and are highly approved for their uniform superior quality. All the Pipes are stamped with the Trade Mark, "**Granitic Stoneware**," as above.

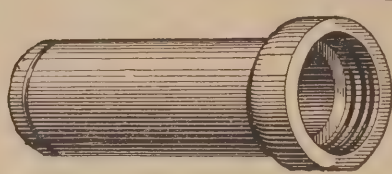
TESTED PIPES.—Selected and Tested under Hydraulic Pressure and Marked

All sizes to 24in. diameter of full Standard thickness, and of any length up to 3ft. for 6in. and upwards.

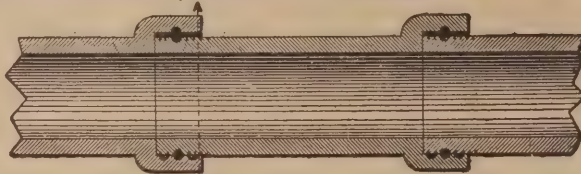


PATENT PARAGON PIPES.

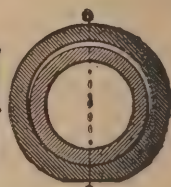
PATENT PARAGON PIPE. C FORM.



PERSPECTIVE VIEW



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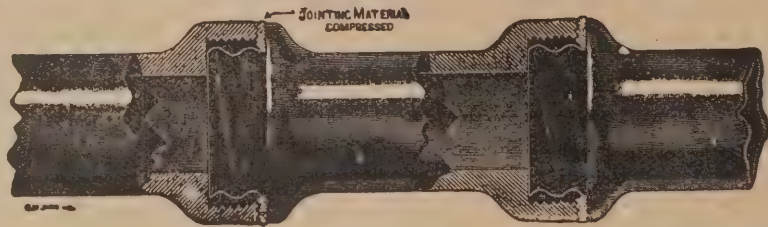
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THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS

An Architectural Causerie.

Contributions to England's History. THE author of a recently published work on Norton-sub-Hamdon,* in the county of Somerset, has apparently obtained his idea from the Rev. J. Ch. Cox, LL.D., who told us some years ago how a parishioner should set about writing his history, or that of the place he belongs to. At the time his booklet was written a much-needed "County History of Lincolnshire" was being projected on the basis of separate parochial histories, and it appeared to the writer that the material for a complete History of England would quickly be found, if only in each particular case the *genius loci* were made to bestir himself, and the consequence was an opusculum which anticipated all his requirements. Would you know "How to write the history of a parish" you must be provided with this little book in its latest edition; and if to learn rather more than enough about Norton-sub-Hamdon, you may purchase the handsome volume which Mr. Charles Trask has written and published. It will appear to the general reader to be in every respect thoroughly done. A map, we are told, is a *sine qua non*, and a map of the parish there is. "It should be," says the Rev. Charles Cox, "on a scale sufficiently large to mark all field-names, and it would be well if all obsolete names were marked in a different type, while disused footpaths, or bridle-roads, as well as any changes of the physical characteristics, might also be noted." The author has brought the results of considerable studies to bear upon this particular subject. The position of Norton is implied in *sub* Hamdon; and as *don* stands in Celtic for "hill," we are prepared to be told that the British entrenched that same hill, and established themselves upon it. From this point, looking eastward, the Roman town of Ilchester, "on the line of the great fosse road, is conspicuous in its lowly estate." So History, "layer on layer," is here—British, Roman, and Saxon—and the parish, although containing in all but 110 houses, may be thought worth writing about.

The contrast is complete between this and the comparatively stirring account of Coventry, which, under the title of "Life in an Old English Town," Messrs. Sonnenschein publish. The volume contributed by Mary Dormer Harris forms one of a "Social England" series, and we are told that there is in preparation with others a book on "The English Manor," which should be especially interesting. One who is not a Nature-formed historical student, but whose fondness for shapely things of all sorts is incurable, will sometime or other, if only that he may be able to reason in favour of his pleasures and preferences, look to books for the meanings of institutions and things that seem merely praiseworthy at present. The architectural

student, for instance, works backwards through History. He may happen, perhaps, to grow tired of merely loafing about in old places; maybe he would like his beloved to think that he knows a little at least of what he talketh so freely about. The reason is far to seek, but shortly, no longer the slave of pleasure, he asks for just as much knowledge as relates to the things he delights in, and is more than a little grateful to the writer of helpful books. When last we visited Coventry we had not Miss Harris's volume, or anything like it beside us, and there was nothing to do when night fell but wonder "What might be done next?" Our

many grievous exactions, were persistently making money, and the King, when he wanted it, had to beg for it more or less humbly. What had he to give in exchange but a Charter, and what, at the moment, more welcome? "Knowing how far-reaching was the power of the town rulers, how absolute their sway over the action of their fellow-citizens, it is difficult to estimate the importance of the gift of a Charter of Incorporation. Coventry became, in 1345, a free and independent borough, that is to say, that the affairs of the town were henceforward to be managed by the elected officers of the townsfolk, not by the



Puerta Dorada

Monastery of Poblet

A SKETCH BY F. HAMILTON JACKSON, R.E.A.
Vide "SPAIN: ITS PICTURESQUE CITIES AND MONASTERIES."

pleasures being such as they are, we would rather have had this book than Coventry's best cigar. There is nothing, perhaps, more difficult to explain to oneself or others how a township attains its position. In Coventry, as elsewhere, we find the territory divided between the Earl and the Prior, and one of Miss Harris's chapters relates to their squabbles—each holding a court of his own, and resisting the claims of the other. If the town favours one or the other it may gain a little, perhaps, but not until it is rid of them both can we talk of municipal life. While the landlords were quarrelling, the townsmen, in spite of

nominees of the Prior, the Earl of Chester, or except within certain well-defined limits, those of the King." The most valuable chapters of this ample and excellent book are possibly those on "The Prior's Half and Earl's Half;" on "The Corporation and the Guilds;" "The Corporation and the Commonalty" which shows what people may suffer in spite of their nominal freedom for a "Close Corporation" is the most absolute autocracy; on the Lammas or Common lands, and on "The Companies of the Crafts;" for the general reader those on the daily life in the town, and the concluding chapter on Old Coventry.

E. R.

* "Norton-sub-Hamdon, in the County of Somerset," By Charles Trask. Athenum Press, Taunton.
† "A History of Coventry from the Earliest Times, compiled from Official Records," By Miss Mary Dormer Harris. Social England Series. Sonnenschein and Co.

The Regeneration of Mayfair.

LONDONERS, who have been exiled from town, from one cause or another, during the past ten years or so, and have only just now renewed acquaintance with the metropolis, will find many changes in its once-familiar streets. Whether it be in the City, or north, south, east, or west, the builder has been incessantly at work, and the London of to-day has, for that reason, become an altogether different place. Although no district has entirely escaped this modernising influence, it is to the West End that we must look, after the City, for the greatest changes. It is not always, nor indeed often, that we can find it possible to point to rebuilding operations and to say that everything is satisfactory. Sentimental considerations, as a rule, come in and give regrets for demolished structures on whose sites the new buildings stand, spick and span. Here, however, in the west end of town, in Mayfair, where a whole district has been rebuilt on the south side of Oxford Street, there were no houses of any great historical fame, while high antiquity and art were alike sadly to seek in a neighbourhood which scarce more than a century ago was a waste of open fields or scattered farmsteads. The houses built on these lands were put up in an era when taste was conspicuously absent from Architecture, and when the town houses, even of the wealthy (and this was then a pre-eminently rich and aristocratic quarter), were built with bald and artless elevations. We are not, however, to suppose that it was an enlightened appreciation of art that led to this recent transformation. Had we been obliged to wait for that, we might well have seen those featureless and colourless streets outlasting our time. The real cause of the change that has come over the district may be sought in the fact of its being all comprised within the ring-fence of one great landlord's property. It is no secret that those streets which centre around Grosvenor and Berkeley Squares are the freehold of the Duke of Westminster, whose scheme for rebuilding the whole of this estate is now so well advanced that few portions of it are left as they were. Berkeley Square itself is, perhaps, less changed than its surroundings, part of it lying on the borders of the Grosvenor property, but even here modernity has come to live in that once altogether gloomy place, and Thackeray, who, in *Vanity Fair*, wrote of it as "Great Gaunt Square," would scarce recognise it now. Its near neighbour, Mount Street, has been altogether re-edified, and at the western end of this now fine thoroughfare rises one of the finest modern mansions in London, Lord Windsor's house. Here, where Park Street crosses at right angles, with Park Lane a little distance along, new houses and flats have just been completed, rich in finely-cut brick and stone elevations, while, fronting the Park, stands that curious example of Messrs. Balfour and Turner's unconventional genius, the long low range of Mr. Beit's house that so sorely exercises the critical faculty of the passers-by on the buses. Few leases now remain to fall in on this neighbourhood, and we shall then see the unusual spectacle of a whole residential quarter rebuilt within twenty years or so. There are those who quarrel with the circumstances that give so huge an unearned increment to the landlord, but this one fact remains, that it is only on the great estates such as these and the Portman and Bedford properties that the cry for an ideal metropolis, for the "London Beautiful," is likely ever to be realized.

C. G. H.

Picture Sales at the Academy.

A BAD YEAR.

ARTISTS who are exhibiting this year at Burlington House must find but small satisfaction in consulting the sale catalogues which are spread out on the little tables in the vestibule, for the sales at the present exhibition compare very unfavourably indeed with those of 1897, which was not itself by any means a prosperous year. It is difficult (says the *Westminster Gazette*) to account for this falling off, for a cold, wet early summer like that of the present year is always beneficial to the exchequer of the Royal Academy. When the weather is fine and warm the Londoner at leisure naturally prefers to amuse himself out of doors, reserving chill and rainy days for the Academy and kindred institutions. This year there were many inclement days in May and June, and an unusual number of shillings were therefore paid at the turnstiles of Burlington House. It might well be supposed that the sales of the pictures would bear some relation to the number of the visitors; but this,

UNFORTUNATELY FOR THE ARTISTS,

has not proved to be the case. To the Academy itself the season has been a prosperous one, but the entire amount realised by the sale of pictures up to the 15th of July, by which time the sale season is practically at an end, was only £13,730 18s., against £16,384 15s. in the corresponding period of last year. Yet, curiously enough, though the sales, taken altogether, are disappointing, they show in one department a marked improvement upon 1897. This is in the Water-Colour Room, where seventy-five drawings have been sold for a total sum of £2005 17s., while last year only fifty-six were disposed of for £1282 17s. The prices of the sold pictures in this room range from £3 3s. to £162 15s., the last-mentioned sum having been given for Mr. Archibald Thorburn's drawing, "The Home of the Golden Eagle." Other water-colours which have realised more than a hundred pounds each are Mr. H. M. Rheim's "Quia Multum Amavit" (£110), Mr. Tom Lloyd's "By Misty Stream and Meadow" (£105), and Mr. Alfred Glendenning's "Haymaking," which the Chantrey Trustees have acquired for £157 10s. Turning now to the

OIL PICTURES,

it will be found that in the First Gallery—always a good room for sales—ten works have found purchasers, the amount realised being £1487 5s., compared with £1395 16s. last year. Chief among the pictures sold in the First Gallery are "The City of Newcastle-on-Tyne," by Mr. Niels M. Lund (£315); Mr. La Thangue's "Nightfall" (£300); "Phyllis is My Only Joy," by Mr. Seymour Lucas (£250); and Mr. Sidney Cooper's "A Morning in Autumn" (£250). In the Second Gallery, the sales amount to £1735 2s., against £603 10s. in 1897. Here Mr. Melton Fisher has sold to the Chantrey Trustees for £500 his picture, "In Realms of Fancy." Mr. Godward's "Nymph of the Chase" has gone for £230, Miss Jessie Macgregor's "The Room with the Secret Door" for £210, Mr. Logsdail's "Going to the Procession" for £175, and Madame Henriette Ronner's "Memories and Anticipations" for £150. So far the sales have shown an improvement instead of a depreciation, when compared with those of last year, and it is not until the great Third Gallery is reached that the

SIGNS OF FALLING OFF

become apparent. Here, however, the loss is a serious one. In 1897 the sales in the large room amounted to no less than £4171 15s., this year they are only £1930, and the greater part of this is represented by the price of one picture, Mr. Frank Dicksee's "An Offering," which was disposed of for £1200. The other pictures sold in Gallery 3 are "Charles II. at Whiteladies," by Mr. Ernest Crofts (£400), "The Ash Grove," by Mr. G. D. Leslie (£200), Mr. Ralph Peacock's "Ethel," which has been purchased by the Chantrey Trustees (£105), and a small painting by Mr. Owen Dalziel, "A

Rescue" (£25). In the Fourth Gallery the sales are considerably better than last year, £1289 7s., compared with £989 12s. In this room Mr. Alfred Parson's landscape "The Mooters" (£840) and Mr. C. E. Perugini's "Weary Waiting" (£400) are the chief pictures sold. The sales in the Fifth Gallery show, on the other hand, a deplorable falling off from the 1897 figures. Last year several important canvases in the Fifth Gallery found purchasers, for a total sum of £1762 10s., but now only one picture is sold—only one, that is to say, of those priced for sale in the catalogue. This is "The Magic Mantle" (£100), by Mr. I. L. Gloag. The returns from the Sixth Gallery are more depressing still. Five pictures have been sold, it is true, but they realised between them only £78 3s., while last year's sales amounted to £1933. In Gallery Seven, where Miss Margaret Dicksee's picture, "A Sacrifice of Vanities," has been disposed of for £250, the figures are better than those of 1897—£497 10s. against £254 15s., but in Gallery Eight, where last year pictures to the value of £1359 15s. were sold, the balance is once more

ON THE WRONG SIDE.

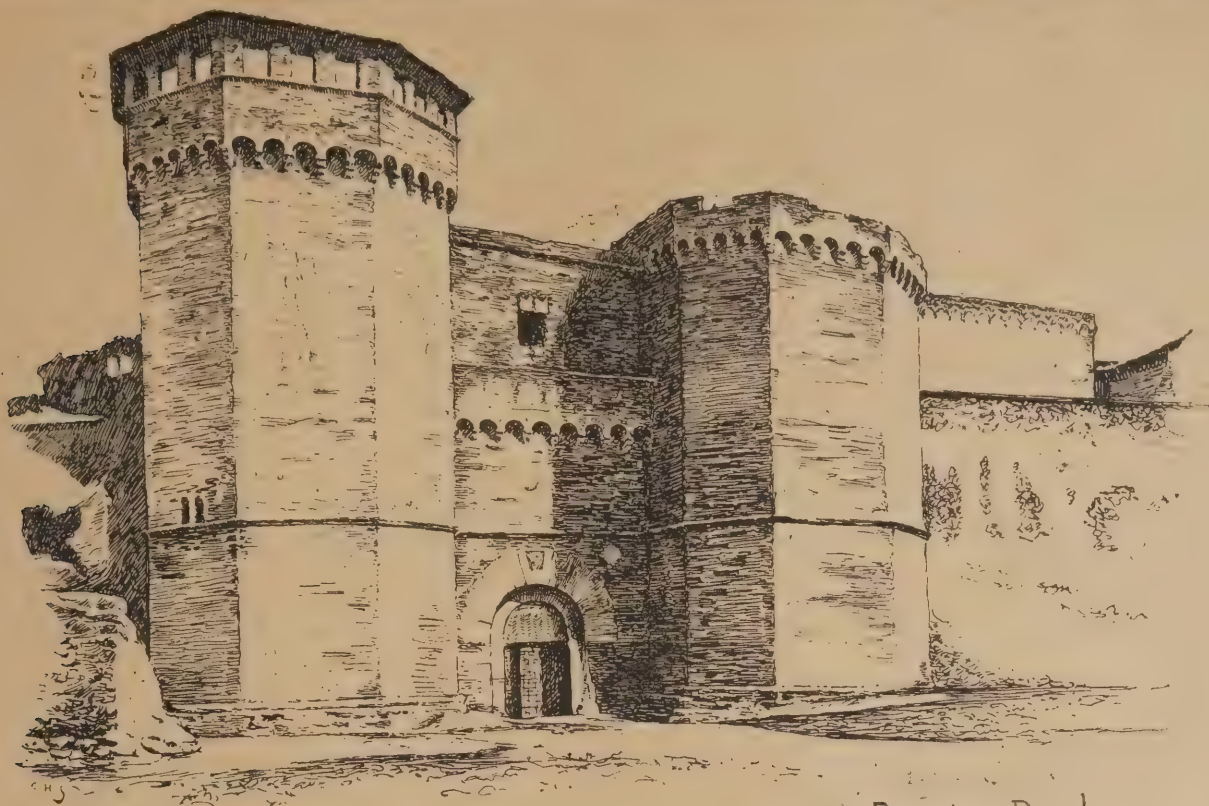
The sales this year in the Eighth Gallery amount only to £705 5s., the highest price (£400) having been given for Mr. Joseph Farquharson's "The Weary Waste of Snows." This year at the Academy small pictures have sold much better than last. No fewer than forty of the 208 little canvases shown in the Ninth Gallery—a room which is always devoted to small pictures—have found buyers. The highest-priced picture sold in the Ninth Gallery is an interior by Miss Jessica Haylar, which has been disposed of for £157 10s. The sum total of the sales in this room amounts to £951 8s., compared with £826 16s. last year. In the Tenth Gallery, which is not usually a good room for sales, exhibitors have done very well this year. Nine pictures have found purchasers for a total sum of £1788 5s., compared with seven pictures and £903 15s. in 1897. The sales in the Eleventh Gallery are also good, £840 8s., against only £391 6s. last year.

IN THE SCULPTURE GALLERIES

the sales, which were bad last year, show a further decline. Only seven of the works on sale in the Central Hall and Lecture Room have been disposed of, and two of these were sold for a guinea each, one for three guineas, and one for eight guineas. Mr. Hamo Thornycroft is the only sculptor upon whom fortune has smiled at the Academy this year, his bronze statuette, "The Bather," having been sold for £250. Finally, in the little gallery devoted to works in black and white, seven drawings, at prices ranging from one to eight guineas, have been sold for a total sum of £30 15s. It must, of course, be understood that the figures given above refer only to the official sales at the Academy, and that a certain number of pictures, including some of the most important, are disposed of privately. The only pictures which have been dealt with are those which were sent to Burlington House priced for sale; but these naturally form the large majority of the exhibited works, for the Academy is incomparably the best selling gallery in England. Numbers of artists build their chief hopes on the chance of selling their works at the Academy, and to them the great falling off in the sales is a matter of very serious import.

THE Earl of Dudley has laid the foundation-stone of the new grammar school at Dudley. The institution dates back to Queen Elizabeth, when lands were granted for the purpose of establishing and maintaining it. The new building is to cost £10,000, and will accommodate 150 boys.

AN effort is being made to raise funds for the complete restoration of Great Hampden Church, which dates from the thirteenth century, and contains many antiquarian features of the greatest interest. It is estimated that the work will involve the expenditure of about £2000.



Puerta Real
Monastery of Poblet

SPAIN: Its Picturesque Cities and Monasteries.

IV.—THE MONASTERY OF POBLET.

By F. HAMILTON JACKSON.

THE monastery of Poblet was one of the most powerful and richest of the Cistercian monasteries, and the first established in Catalonia. It was made the burial-place of the Kings of Aragon, and after the union of Aragon with Castile, was used for the same purpose by the Dukes of Cardona. It is placed at the entrance of the fertile valley called La Conca de Barberá, at the foot of a range of hills called by the name of the Poblet Mountains, which stretches towards Vallerclara, in which the River Francoli takes its rise. It is situated upon that river, the buildings being upon one bank, while a great part of the lands which belonged to the monastery are on the other side. The situation is charming, both on account of the pleasant views, the abundant waters (which also include some mineral springs), and the delightful air, which makes it a most healthy place to live in. Indeed, the chalybeate spring called Font de Ferro, distant from the monastery about one kilometer, is now surrounded by numerous so-called chalets, to house those who desire to take the waters and their families, and they are much resorted to in the heats of summer by the Catalonians.

The best way to get to the monastery from Tarragona is to take train to the station Esplugas de Francoli, on the line from Tarragona to Lérida, which joins that from Valls to Barcelona, at the junction of Picamoixons. From Esplugas to Poblet there is a service of carriages in connection with the trains.

The monastery buildings are surrounded by a great wall more than a mile in length, and 15ft. high, in which is but one gateway. From this an avenue of slender trees conducts the

visitor to a little plaza, at the right of which is the chapel of the Virgin of the Rosary, a beautiful little building of late Gothic, passing into Renaissance in the frieze. It was built in 1442 at the cost of Alfonso V. of Aragon, and was commonly known as the Chapel of St. George, but has recently been restored to its original dedication. At the end of the avenue is the Puerta Dorada, the gilded gate, so called because the sheets of copper with which the doorleaves were covered were gilded in 1564 in preparation for the visit of Philip II. It was built under the kings Don Juan II. and Ferdinand the Catholic, and is a large, simply designed work, with machicolations above the gateway, below which are three Royal escutcheons and three of a smaller size, showing the abbot's arms. It was in this spot that royal personages who paid a visit to Poblet were received, and formerly there was a sort of atrium behind it, the walls of which were painted with scenes from the life of the hermit Poblet, and with the subject of Ramón Berenguer granting the monastery to the original monks.

Standing in the Plaza Mayor, to which the Puerta Dorada admits, on the left is a Romanesque chapel, dedicated to St. Catherine, which is one of the three churches which Ramón Berenguer ordered to be built in the year 1150. On the right is a garden, occupying the spot where the pilgrims' guest-house stood; until a few years ago considerable remains existed showing that it was Gothic in style and well proportioned. Just beyond are the small remains of the carpenter's shop, a piece of wall containing a fine pointed window. Here again ruin has befallen the building during the last few years, removing from the interior corbels and other pieces of delicately sculptured stone. At the extreme right, in a prolongation of the plaza, are the ruins of the palace of the abbot—a grandiose and pretentious building of the worst period, containing an enormous number of rooms and galleries, courtyards, gardens, and staircases, connected with the church by a long covered passage also ruined. Around this plaza were grouped the dwellings of the artisans, also the apothecary's and doctor's houses, with the garden of medicinal herbs, the brandy distillery, the wool store, the smithy, &c., and

further back the stables and carthouse, with the dwellings of the field labourers by them.

The wall of the inner cloister bounds one side of the Plaza Mayor, with towers at intervals along it, and with two entrances pierced in it, the entrance to the church, and the Puerta Real, the royal gate, close to which is the staircase to the unfinished royal palace. The church door is surrounded by ornamentation of the period of the decadence, when labour and costly marbles were thrown away upon worthless design. It has above the door a statue of the Virgin in a niche, and on either side niches containing statues of St. Benedict and St. Bernard on a lower level. This doorway gives admission to a sort of atrium, from which the church is entered, called a "Galilea." It is a late addition, and is divided into three vaulted compartments, having chapels at each end. The doorway into the church is the splendid Romanesque one, which has not been meddled with. The plan is a Latin cross, the nave being divided into nave and aisles by a range of seven piers up to the crossing. The transepts are small, and behind the high altar is an apse with seven apsidal chapels, two of which open from the transepts.

The width of the nave is about 27ft., and of the aisles 13ft., making a width from wall to wall of about 66ft., for the piers are nearly 6ft. 6in. thick. The length, including crossing and apse, is about 260ft., and the height of the aisles 55ft., and of the nave 90ft. It was constructed at the very beginning of the reign of the Pointed style, and was a long time in building, so that the style up to the height of the imposts is Romanesque, while above that level the influence of the new ideas begins to be felt, and the rest of the work is definitely Gothic.

The retablo of the high altar is a work of the Renaissance, sculptured in alabaster with great delicacy. It consists of four rows of niches separated by ornamental friezes, while between the niches are pilasters with arabesques. The lowest row contains subjects in relief from the life of Our Lord and His Passion, which also run through the third. The central niche of the second row, which is so much larger than the others that it breaks through the frieze, contains a group of the Virgin and Child; the

other six are empty, the figures which tenanted them having been taken to Belgium in 1839 by General Van Halen; so the people of the place say. In the centre of the fourth story is an Ascension, on each side of which are three pairs of coupled arches containing statues of the Apostles, two of which are missing. Above all is a crucifix and a cornice, very richly and delicately worked with arabesques and figures of children, which ornament also runs down the sides, forming a sort of filling between the architectural framing and the walls. There are eighteen chapels in the church, which are only arranged on one side of the nave; the other being considered to be too near the cloister. The choir occupied the middle of the nave, an arrangement common in Spain but unusual elsewhere. The elaborately carved seats, as well as the organ which it contained, were unfortunately destroyed by a fire. The gate to it was made in 1584.

The other entrance from the Plaza Mayor, the Puerta Real, was the direct way to the principal cloister, which lay close to the church on the north side. It is defended by two octagonal battlemented towers with machicolations around their summits, which were also repeated above the gateway. Its walls are decorated with the arms of Aragon and Catalonia. It was constructed between 1367 and 1377, Pedro IV. of Aragon bearing the greater part of the cost. At the same time the wall which encloses the internal cloister was built, that monarch desiring to convert the monastery into a real fortress which would be safe from external attack. This wall is over 6ft. thick, 36ft. high, and about 620yds. long. The way in which the king contributed to the work was by allowing the monks of Poblet to spend upon the fortification of their own monastery the contribution which was due from them towards the general fortification of his dominions, and at first the walls did not rise with the desired rapidity, because the officials of Lérida, Montblanch, and Cervera, from whose subventions the contribution of Poblet was deducted, put obstacles in the way; but in 1374, fearing that the invasion of Aragon might extend to Catalonia, the king published an order commanding all his vassals, without distinction of class, to work at the fortifications of Poblet until it was completed, the monastery contributing tools and the maintenance of the workmen. After this the king feared that the number of refugees might be so great as to disturb the atmosphere of quiet so desirable in a convent, now that it was a place of security, and he published another order in 1382, by which he limited the number of the suite of such nobles as might wish to stay there, fixing that of members of the Royal family at twenty persons, while counts might have fifteen persons in their train; viscounts, barons, and other nobles but ten. Don Juan II., writing to the Abbot D. Miguel Delgado in the middle of the fifteenth century, specially charged him to look well to his walls, saying that after Tarragona and Lérida there was no fortress in Catalonia which he valued so highly.

From the Puerta Real one enters the principal cloister by a vaulted passage ending in a Romanesque doorway. It is longer than it is broad, the sides parallel to the church having nine arches, while the other two have but eight. The side next to the church is Romanesque in style, and so is the lavatory, which projects from the opposite ambulatory, called the Romanesque "templete;" but the other sides are of fine pointed work, with well-moulded arches and traceries. The lavatory is hexagonal in plan, having in the centre a fountain of stone, from which the water spouted through thirty-one pipes in the time of the monks. Each side is pierced by coupled arches under a larger one—all circular. The capitals are plain and the mouldings simple. The pillars at the angle support a sort of parapet wall, which is supported also by simple corbels. The outer arches of the Romanesque side of the cloister are slightly pointed, the smaller ones being circular, and resting upon coupled shafts and well-carved capitals. On the other sides the head of each arch is filled with tracery, the lower part consisting of

pointed and cusped arches, varying in number from two to four, which rest upon shafts with beautifully carved caps. The vaulting ribs spring from clustered columns. There was formerly another story to this cloister, which was probably of wood, except for the arches at the angles, some of which still exist.

Around the cloister were grouped the various most important dependencies, such as the refectory, library, chapter-house, &c. The first is entered from the first door on the left in the ambulatory to which the Puerta Real conducts. It faces the entrance to the lavatory, and is a vaulted chamber about 35ft. broad by a little over 100ft. long. It is lighted by twelve tall and narrow windows, and is vaulted in four spans. On the right is a pulpit and staircase of hewn stone affixed to the wall, from which it was the custom to read edifying books during a meal to occupy the thoughts and promote digestion. In the further part of the room are the remains of a sort of fountain used for cooling fruit and drinks during the repast. Attached to the refectory are the kitchen (with a hole in the wall where the servery was), storehouses for provisions, &c. Next came a room which was used as a shaving and warming place, formerly vaulted, but now showing but few architectural remains. A little beyond, turning round towards the church, is the magnificent chapter-house. It is a square room, about 48ft. across, and is very fine in its proportions, and well constructed; four slender columns, from which the vaulting ribs spring divide the roof into nine bays, which receive light through five beautiful Romanesque windows—columns, capitals, and corbels all beautifully carved. Around the walls are the remains of three steps, upon which wooden seats were placed. The walls were formerly decorated with portraits of Poblet monks who had been made cardinals or prelates. In the floor are the carved sepulchral slabs of several abbots, many of whom have been buried in this place.

Between the refectory and the chapter-house a door, which bears the arms of Don Pedro of Aragon, gives admittance to a vaulted passage which served as a talking place for the younger monks, and from which the library opened. This building consisted of two rooms, called the ancient and modern libraries. The first of these is 82ft. long by 32ft. broad, and was also known as the Library of D. Pedro of Aragon, because it contained at first his splendid gift of 4322 volumes, precious either from their antiquity or their merit. The other room is nearly the same size, and contained 6500 volumes, which had belonged to dead and gone monks. Their loss is not so much to be deplored as that of the older books, among which were an eleventh century illuminated Bible, a chronicle of King Henry IV. of Castile, and some interesting manuscripts of the fifteenth century. The two libraries are vaulted, and are lighted by high windows. Above them and the chapter-house is a great room 94ft. long, which served as the Novices' Dormitory. Nineteen arches thrown across the room sustain the roof, and from the end nearest to the church a broad staircase descends into the north transept.

There was a corridor a little more than 12ft. wide down the centre, from which the cells were entered, which were square, 3yds. to each side. At the side of the dormitory, above the chapter-house, was the "Archivo" (record office), in which was deposited an enormous number of documents, for the monastery enjoyed the prerogatives and rights of a public notary, given it by Don Pedro of Aragon. There are still preserved in the Academy of History at Tarragona more than 20,000 of these documents, though many have been lost.

(To be continued.)

THE church of Crawley was struck by lightning last week. The lightning was communicated from the conductor to a stove. A terrific explosion followed, and a ball of fire appeared to travel from the north to the south aisle. Beyond two broken windows no harm was done.

IN THE HARTZ DISTRICT.

By G. A. T. MIDDLETON, A.R.I.B.A.

III.—BRUNSWICK.

ONE day only was devoted to Hanover—just long enough to skim the cream, though doubtless much more of interest could have been found had the stay been longer. Brunswick, the next place visited, proved to be of a different character entirely, for although the new buildings are even more handsome, especially one surmounted by a fine "quadri-za" group, they are in a minority, and the interest centres much more amongst the old work. The only architectural lesson is that of the employment of detached brass angle staves to the corners of the staircase, and wherever heavy luggage is likely to be carried past.

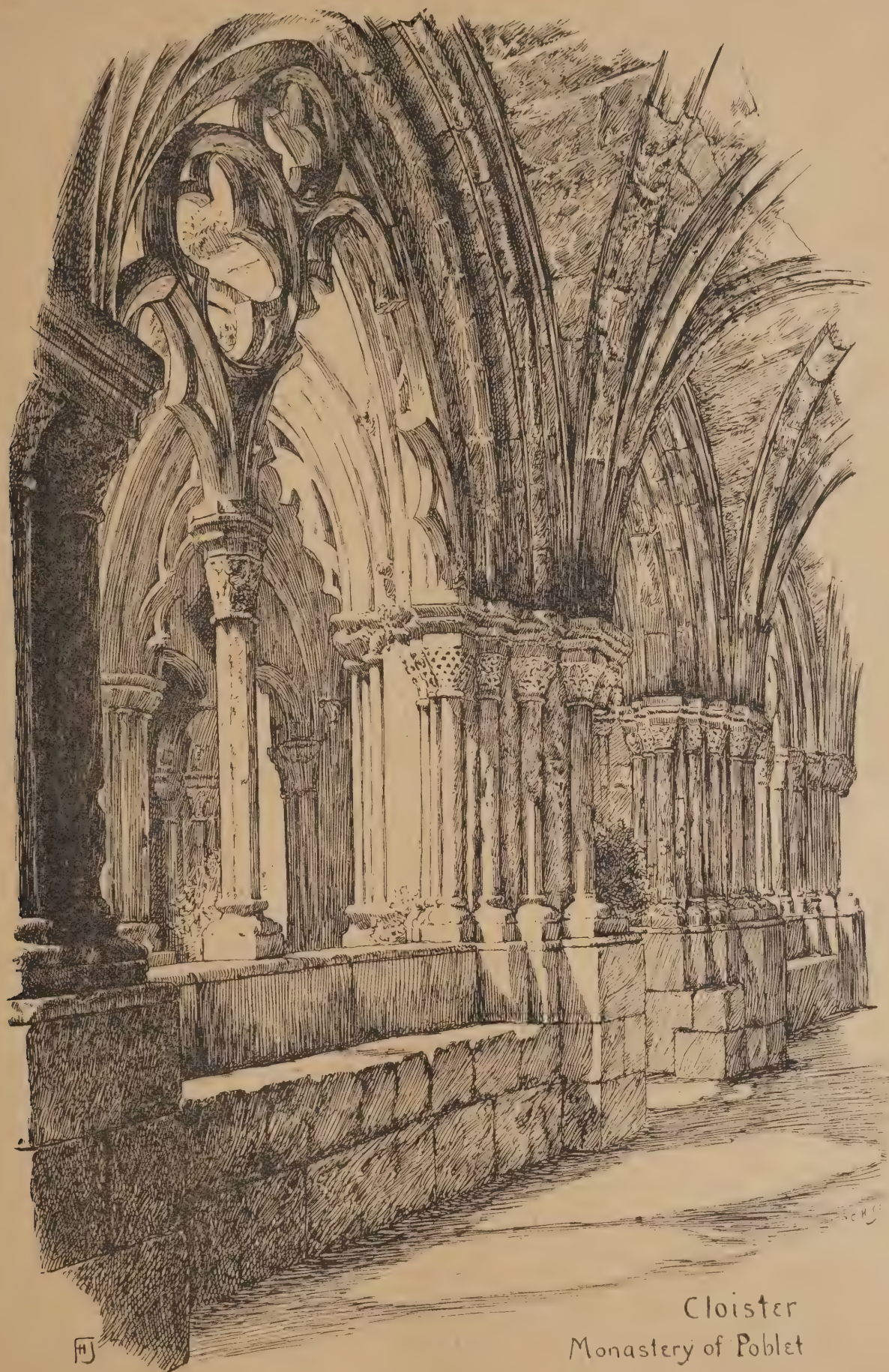
As is the case in most large towns, it is the cathedral, amongst the old buildings, which first attracts attention, even if, as at Brunswick, it is not really the best thing there. Still, it is notable, particularly the interior—solemn, simple Romanesque, with the chancel and transepts raised very much above the level of the nave to allow of a crypt underneath on the nave level. This raised portion is now used for Communion services—we should say as a morning chapel—the principal Communion table and the pulpit being west of the crossing with a great suspended rood above to act as a screen, while a flight of stairs rises on either side of the reredos. The effect is very fine indeed, being greatly assisted by the rich colouring which covers everything, walls and columns and vaults, in generally well-designed ornament. If there were not other notable examples to show it, this would be sufficient to prove that a church of severe and simple outline needs flat colour decoration, lavishly employed, to bring out its full beauty. Here at Brunswick the effect from the west end is heightened by a great broad brass ring being suspended in the middle of the nave, of nearly its full width in diameter, as a gasalier.

Like the cathedral, all the other churches appear to have originated in Romanesque times, and to have had two square or octagonal Western towers, connected at a low level by a narrow, high-pitched, span roof, such as still exists in the Martini Kirche, the towers themselves being conical roofed; but in several examples, including the cathedral, the space thus left between the upper parts of the towers has been filled about the fourteenth century with a richly traceried belfry, usually having its roof spanning in the opposite direction, having a gable to east and west. The Martini Kirche has little left, except its towers, of the original Romanesque, but the capitals of the north doorway are noticeable from their extremely Byzantine feeling.

Most of the churches date to the fourteenth or fifteenth century, the nave and aisles being of the same height, and the aisles looped with a gable to each bay—a characteristic of every church in Brunswick. In the Martini Kirche these gables occur even to the chapels round the apse, and as they are filled with elaborate blind tracery, the effect is of the richest, especially as the building next to it, as viewed from the Market Square, has an open traceried cloister round it, two stories in height, another unusually beautiful feature.

The tracery of the gables is, in some few instances, replaced in the Andreas Kirche by rudely sculptured representations of scenes in our Saviour's childhood, such as the "Adoration of the Magi," the "Flight into Egypt," and the "Murder of the Innocent;" but such tracery as occurs is of the usual type, and the great height both of the narrow buttresses and of slender mullions in the aisle window is extremely noticeable to one who is accustomed to the English proportions, though similar things are frequently seen in France and the buttresses, at least, need not be so substantial where the roofs are of timber as well tied.

The Cloth Hall at Brunswick, well known through being very generally illustrated in our text books, is a distinct disappointment



Cloister
Monastery of Poblet

DRAWN BY F. HAMILTON JACKSON, R.B.A.

It may be characteristically German, but it does not represent the best even of its class, being an overdone edition of the Lerbuitz Haus at Hanover, itself, as already noted, lacking in delicacy both in proportion and detail. When considered beside the beautiful Gothic and Romanesque of the churches, it is unworthy of notice; yet even these would lose much of their attractiveness but for their setting amidst a profusion of narrow streets of timbered houses, story overhanging story, set at all sorts of angles one with another, with tile-hung gabled roof and multitudinous dormers. Every street forms a picture; it is hardly possible to obtain any other than a good piece of grouping in the older parts of the town. Most of the timber used is oak, but elm is now and then to be seen; and that the construction is round, and the material lasting is evidenced by the age of the buildings, almost all dating back to the seventeenth and even the sixteenth century. As a rule the framing is rectangular, diagonals being most rarely used, and then generally merely crossing a plaster or bucknagged bay, and not cutting the main timbers. All the weight is thus brought as dead weight, without thrusts requiring inclined supports, and overhanging is thereby facilitated, being obtained by merely projecting forward the floor binders, supporting the short projecting portions by brackets (more for appearance than for weight-carrying), resting horizontal beam to carry the upper work upon the ends of these cantilevers, and filling the interspaces with either short filling pieces or with inclined boarding, painted or enriched. Generally the timbers are tenoned and pinned, but the pins are not always to be seen.

At present street after street, and courtyard after courtyard, is to be found of this picturesque work, to which we are reverting in English country practice, but which has almost disappeared from our towns; but this state of affairs cannot be expected to last much longer. Already the old Brunswick of the half-timber houses is surrounded by a fine new town; soon, it is evident, the old, with its narrow tortuous streets and extreme beauty, must utterly disappear.

It was when just on the point of leaving Brunswick, that a noticeable piece of modern construction came into notice in the railway station roof—a combination of wood and iron with a framed ridge, somewhat suggestive of those to the Boucherie at Ghent and the Hotel de Ville at Audenarde, only of low pitch and with the king post stopped short of the tie beam. The tie, though apparently timber, is, on consideration, seen to be a casing, probably hiding rod or bar iron; for in several cases it winds considerably, and the span is no less than 60ft., while no scoves are to be observed.

IV.—IN THE HARTZ-GEBIRGE.

Through trains are rare and travelling is slow in the hill country, though the hills are scarcely more formidable than those in Surrey; and consequently there were opportunities of examining some of the smaller villages. Save for their general picturesqueness, however, caused by their hill setting, and the universality of half-timber still hanging, they are scarcely worth attention, and the only thing seen to which notice need here be called was a soundly constructed and heavily timbered wooden bridge over the stream at Börssum, made of elm, set skewwise across the bend of the river, whose rapid current was prevented from washing away the bank by triangular groins, consisting of three piles driven in at the angles, having stout planking nailed to them.

Naturally, only light traffic could be allowed to pass over such a bridge—an English traction-engine would probably break it down; and the neighbouring railway bridge was of iron, with cross girders, strangely enough, built on the cantilever principle, at quite unnecessary expense.

Another halt took place at Vienenburg, pretty enough but architecturally uninteresting, and at length Halberstadt was reached late in the evening. This is an old town, at present but little visited, worthy of much more

attention than it receives. It not only contains much work of a similar class to that of Brunswick, but possesses its own characteristics, and is, in some respects, better and more varied in detail. The churches, of which there are several, all seem to have been commenced at the west end with two Romanesque Western towers. St. Paul's, one of the smaller, shows the process of building which all appear to have undergone in later centuries—the small Romanesque church still standing, but partly enclosed by a high and wide chancel at the east end—the commencement, evidently, of a great Gothic church, which was to have replaced the older work, as it has done in the other churches, certainly to the improvement of their proportion and dignity. In one of these there is a good deal of eccentric tracery, in which the straight line has been much used diagonally. The effect is far from beautiful, except in some cases where the line is vertical.

The Rath-haus is, however, the most notable building in Halberstadt, though it is small. Originally it seems to have been little more than a rectangular block, having small Gothic windows, and with a huge carved stone figure of uncouth form at one corner; but additions of the seventeenth century, in the form of an external staircase, and an oriel window to one side, and a Gothic bay at one end, of but little earlier date, have broken the outline, and render it most captivating. Possibly I may be wrong in ascribing different dates to these additions, for the Gothic and the Renaissance run very much into one another in these districts, and the Renaissance made its appearance late. In the oriel window, already mentioned, for instance, the corbel is groined with interpenetrating ribs, while four out of the five string mouldings round it—all except the larger top cornice—are precisely alike in contour, consisting of a fillet cyma-resta and quadrant, in downward succession.

Among the domestic work, the large proportion of overhanging timber buildings is quite as noticeable as at Brunswick, while the detail is more varied, and in some instances even more rich, though the construction is practically the same in all. One house exhibited, in the filling piece of the overhang, the largest egg enrichment I have ever seen, there being only one egg to each separate space, and really well it looked out in the timber; while others were simply moulded, and others, again, carved with cable, balls, or billet enrichments. The fillings of the panels in the timber work is usually plain, but in the richer houses the opportunity for display which they give has not been lost; and some are filled with stamped plaster, several with gaudy colouring, and some few with carved woodwork.

Mouldings, even on the main horizontal members, are rare, but their places are taken by bands of lettering such as quotations from the Scriptures and expressions of devotion, sometimes in Roman, but more often in the picturesque German character, and perfectly decipherable, though executed two and even three hundred years ago.

As might naturally be expected, a good deal has been made of the corbels in the better houses, particularly of those at the angles—as a richly traceried specimen in South Kensington Museum shows was at one time the case in England also—and though both well carved figures, grotesques are much in evidence. Canopy work is also to be seen, and mostly in excellent preservation, considering the length of time during which it has been exposed in all weathers.

The day devoted to Goslar, the next place visited, unfortunately proved cold and wet, so as to preclude thorough exploration. While the town seemed to be picturesque enough, its architectural characteristics were so similar to those of Halberstadt, so far as the general features of the churches and the houses were concerned as to call for no exceptional mention. Restoration had been freely indulged in, ruining the Kaiservath, and greatly spoiling the Rath-haus; but the latter still retained its traceried eaves, a picturesque if useless feature, and probably a survivor of crewellation, in an almost unrecognisable form.

(To be continued.)

A NEW GLIMPSE OF AN OLD HOUSE.

"When you have done, repair to Crosby Place."
—Richard III.

ANYONE who passes along Bishopsgate Street just now, and is not too busy to stop for a moment, can see what has not been seen to so great an advantage for many years—the whole side of the Great Hall of Crosby Place, a part of the veritable Palace of Richard III. It must be some two hundred years since the houses were built which closed in the view of the Hall from the street, and now that they are being demolished this interesting piece of fifteenth century London, famous in history and in literature, is revealed and can be seen in its true proportions. Before long, says the Daily Graphic, a hoarding and then the new buildings which will rise on the site of the demolished house will once more shut in the ancient hall and tower high above the roof of what Stow tells us was in its time the highest house in London. In his account of the parish of St. Helen's, Bishopsgate, Stow says:—

Then have you one great house called Crosby Place, because the same was built by Sir John Crosby, grocer and woolman. This house he built of stone and timber, very large and beautiful, and the highest at that time in London. He was one of the Sheriffs and an Alderman in the year 1470, knighted by Edward IV. in the year 1471, and deceased in the year 1475. Richard Duke of Gloucester and Lord Protector, afterwards King by the name of Richard III., was lodged in this house.

Sir John Crosby built the house and its hall in 1466. After Sir John's death his widow sold the mansion to Richard of Gloucester, and there, says Sir Thomas Moore, "he lodged himself, and little by little all folks drew unto him, so that the Protector's Court was crowded and King Henry's left desolate." There, then, in the very hall now so well seen in Bishopsgate Street, the "troubler of the poor world's peace," as Queen Margaret called him—and it was about the mildest of the epithets she used in her curse—plotted and intrigued. It was in the council chamber of the house that the Lord Mayor and a deputation of citizens offered him the Crown.

SHAKESPEARE'S REFERENCE.

Shakespeare was a resident in the parish of St. Helen, and, of course, knew Crosby Hall well. Three times had he referred to it in "King Richard III." In the second scene of the first act, that marvellous scene of the wooing of Anne at her husband's bier, after she had yielded to his suit, Gloucester begs "one favour at her gracious hand," and, on her inquiring what it is, says:—

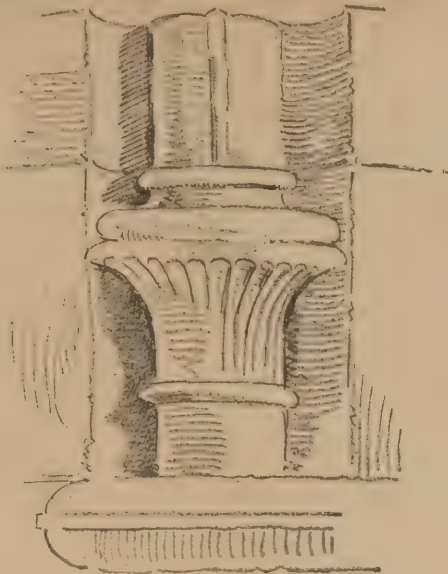
That it may please you leave these said designs
To him that have more cause to be a mourner,
And presently repair to Crosby Place,
Where—after I have solemnly inter'd
At Chertsey monastery this noble King,
And wet his grave with my repentant tears—
I will with all expedient duty see you.

And in the next scene Gloucester bids the two murderers, "When you have done repair to Crosby Place." In 1483 Richard left Crosby Place for the Palace at Westminster. After being used as a residence by nobility of their day and as a prison in the days of the Civil Wars, in 1813 the upper part of the Great Hall became "the warehouse of an eminent packer." The "eminent packer" mutilated the place, and in 1831 the whole building was advertised to be let upon a building lease. That was the critical period in the history of the ancient mansion. A lady, who lived near, stepped forward to save it; others helped her, and thus this unique and splendid specimen of Gothic domestic Architecture was saved from destruction. What is left is but a part of the original mansion, which in the days of its glory consisted of two quadrangles separated by the great hall. Crosby Square, built in 1677, represents one of the quadrangles, and until lately the street front of the square hid the hall from sight. Now, as already said, these houses are down, and the exterior of the grand old historic hall of Crosby Place can be seen for a short time by all that pass. Its interior, as everyone knows, can be seen by simply going and lunching there.



Bases of Shafts

Windows Chapter Ho.



MELLIFONT ABBEY.

MELLIFONT ABBEY:

ITS HISTORY AND ARCHITECTURAL REMAINS.*

By ANTHONY SCOTT, M.S.A.

(Cor. Mem. Central Society of Architects, Belgium).

(Continued from page 430.)

EXTERNALLY the Chapter House presents no unusual finish, except that the buttresses are very neatly executed. The quoins and dressings are of the sandstone used throughout the Abbey buildings with general walling of local stone. The plinth or base mouldings are rather peculiar, and differ in character from other similar features of the Abbey. It consists of a filleted round or bowtell with a good projection, having underneath worked out of a separate stone a large scotia moulding. This plinth exhibits great marks of violent usage; it is very evident that decay has played but small part of its ruination.

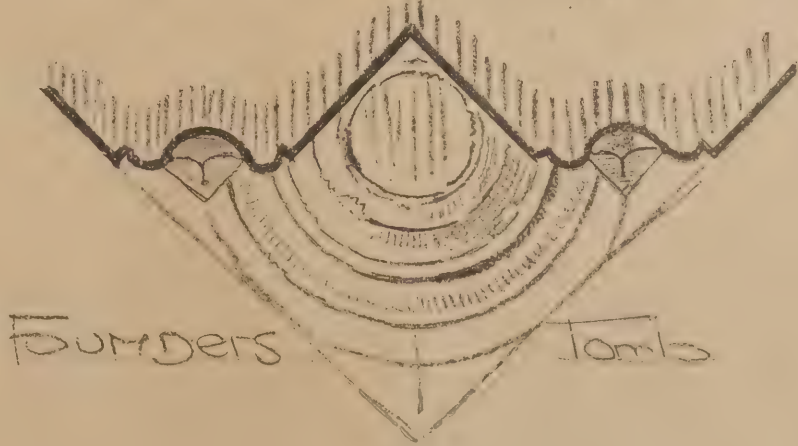
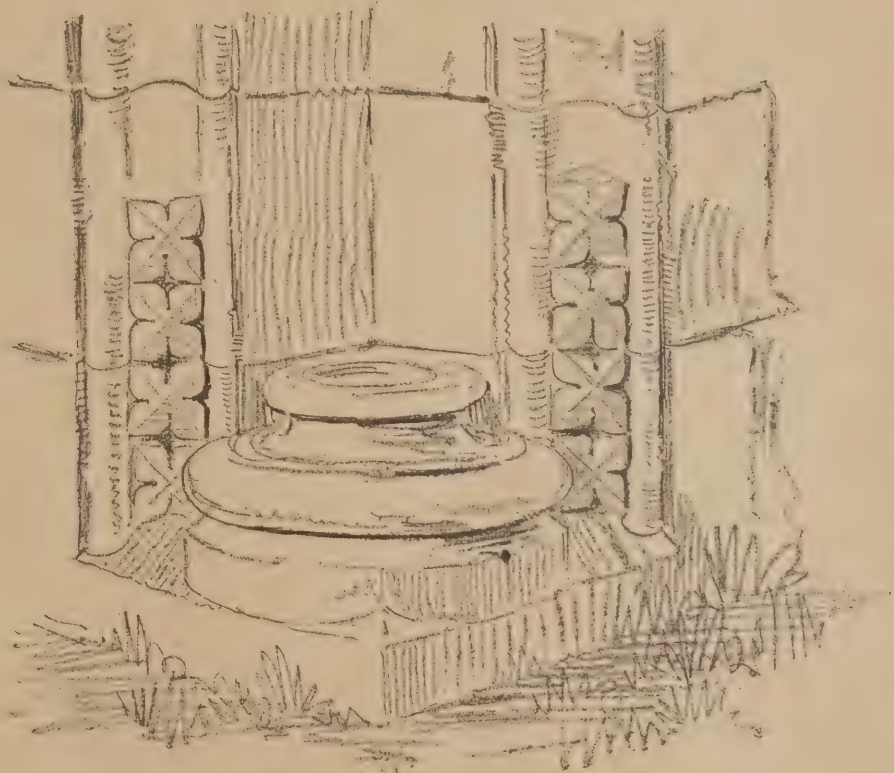
Turning to the eastern gable of the Chapter House, only the discharging arch of the window, built with the thin slaty stone of the locality, is left. None of the wrought-stone work, except the sills, is left. A strangely-shaped sandstone key will, however, be noted as contrasting somewhat with the rubble arch, of which it forms the centre. A much obscured figure is carved on the keystone, what it represents would be rather hard to surmise. No remains of the stone dressings to this window, except those we have already mentioned, are *in situ*. Indeed, a closer examination will show that the window opening as we see it now was probably an enlargement of an earlier and smaller one, and that some other material than the earlier was used to form the later dressings and mullions. This material was brick of a deep red colour, and slightly glazed.

We know that the Cistercians were the first brickmakers in Ireland, and here is evidence of their use of home manufactures. The hood which surrounded this window was of moulded brick, as some very scanty remains will show. Again, the sill of this window is in three pieces, without the usual stools for mullions. In fact, the stone sill does not run through the whole width of opening, and the mullions have for their bases or lower portions moulded red brick of section. We cannot, of course, know of what description the tracery of this window was, or what may account for the use of brick in its mullions. A reasonable inference might be made that the tracery was also

Leaving the Chapter House, and again entering what was the eastern walk of the cloister, and turning into the southern or return walk, one or two steps bring us to the Lavabo. Here the monks performed their ablutions before entering the refectory, the entrance to which is immediately opposite the Lavabo. This building, long known as the Baptistry, may justly be described as one of the most remarkable of the many interesting architectural relics at Mellifont. It possesses somewhat of a foreign appearance, and closer inspection strengthens this impression, particularly as to the strangely foreign character of its mouldings and carvings.

On plan the Lavabo originally consisted of a regular octagon, with sides measuring 12ft. each externally, and having a clear span internally of 25ft. 9in. It was originally groined, the springing of three or four of the ribs still remaining. It is largely a matter of conjecture whether the building was groined with or without a central pillar. If arched from wall to wall, or rather from angle to angle, a considerable amount of thrust would have been exerted on the walls, which are of no great thickness, and incapable of resisting the thrust of groining. Had the section of the grain ribs been semi-circular, or of the same curve as the arched openings in the side of the octagon, the tops of the ribs would rise considerably higher than the indicated level of the upper floor, or possibly even above the window sills. If, as we may reasonably suppose, there was a central shaft from which

of brick. There, however, are the unmistakable remains of such material, and it is a pity that so little remains of this interesting use of the humble brick in our ancient Abbey.



Dumders

Tomb

MELLIFONT ABBEY.

* A paper read before the Architectural Association of Ireland.

the groin ribs sprang each to its internal angle of the buildings, this difficulty would not exist. Such a central shaft would follow other examples of Cistercian abbeys, where we find such shafts dignified by the name of marble tree.

No trace of such a feature was found at Mellifont. It might also too easily have fallen or been broken away at some time in the story of the Abbey's destruction. And, again, the foundations of footing courses of all the masonry at Mellifont are but shallow, and could easily have been passed by unnoticed, and removed with excavated material, or so scattered by various other causes as to be incapable of restoration.

Sir Thomas Deane is of opinion that a roofed verandah surrounded the Lavabo, such an erection would have protected the moulded stonework from the weather. It seems rather improbable that the builders of the Lavabo would have left such hollows to contain water to assist in the decay of the stonework, without providing outlets for the water, if there were no external verandah.

In the internal angles of the Lavabo, the groin ribs continue to the floor line, the horizontal moulded courses returning around them. Below the label course of the arched openings, the section of the ribs is slightly modified. The internal base or plinth course is also returned round these angle shafts, and presents a most delicate treatment. The small fillets between the mouldings are very fine and exhibit most subtle knowledge of this art by their design. The carving of the shaft, caps, and those of the groining ribs deserve close attention the delicacy of the carving and the beautiful design of each of them are some of the most interesting pieces of work among all the various subjects at Mellifont.

Some of them were executed in Caen stone which has slightly decayed, but the real and most apparent cause of their fragmentary condition was the hand of the deliberate destroyer, whose instrument of destruction has left its mark on nearly all of these examples of beautiful mediæval carving. Externally the wrought and moulded stonework of the lower story finishes at the string course above the arches, and gives way in the upper part to the ordinary rubble masonry, with dressed sandstone quoins. The upper part of the Lavabo presents no extraordinary features. The remains of the windows of the first floor are perfectly plain, and without dressings.

A curious and rather interesting fact about the Lavabo is the use of timber chain bars at the angles of the walls. These ties or bars, of which one is yet to be seen, are of oak. They are halved and crossed and bedded in the thickness of the walls on ordinary mortar. Each measures 5in. by 3in. in section. The remains of one of them are still so hard and undecayed that no impression can be made upon it with an ordinary knife.

The entrance to the Lavabo, which we have noticed was opposite the door leading into the refectory, was evidently a specially elaborate feature in this remarkable building. On each side or jamb of the door were clusters of five detached shafts, of which the base mouldings of some and the faint outline of others are all that at present remain. The bases to these shafts are all worked out of the solid stone of the base block, and are not worked separately and doweled to it, as found in other cases. Although no trace of it remains, we may well suppose this entrance to have had a central shaft or cluster of shafts, from which sprang the arches on to either side. That this is very probable, the width of this entrance compared to those of the arches opening in the sides of the Lavabo would seem to show.

The ruins of this part of the Lavabo and the sides of the octagon adjoining are fragmentary, and the work much different to other used at the Abbey. Any restoration of this doorway, or, indeed, the whole Lavabo, must be then only conjectural.

Immediately opposite the entrance to the Lavabo we find indications of the door leading into the refectory; of this room and the other monastic apartments but few remains are now to be seen. The vaulted apartment known as

the Califactory, and the narrow passage beside it, contain no architectural treatment worthy of a long notice in this paper. No traces of the western block of buildings containing the lay brothers' apartments are to be found in sufficient degree to enable us to conjecture their extent and appearance.

Here, then, we must leave the venerable ruins. Of their history pages on pages might have been written but for the oblivion which has swallowed up all the ancient records of its monks and brethren.

In conclusion, let me express my deep indebtedness to Father Joachim Hennessy, a Cistercian of St. Joseph's Abbey at Roscrea, from whose valuable "Guide to Mellifont" most of the history of that Abbey has been gleaned; to whom is due a tribute of praise for his admirable guide, and the patient and laborious care with which he compiled its various facts.

BRITISH ART OF TO-DAY.

By SIR EDWARD POYNTER, P.R.A.

THE Lord Mayor gave a dinner on Saturday night week at the Mansion House "in honour of Art." Mr. Geo. Fray (French Minister Plenipotentiary) and Sir Edward Poynter (President of the Royal Academy) occupied the seats on his Lordship's immediate right and left, and among the list of guests was fully representative of British Art. Architecture on this side of the channel was represented by Professor Aitchison, Mr. F. C. Penrose, Mr. Norman Shaw, Sir Arthur Blomfield, and Mr. T. G. Jackson. The Lord Mayor proposed "French and British Art." M. Armand Dayot replied for French, and Sir Edward Poynter for British Art. In the course of his speech Sir Edward said: "There are two elements which have gone to form the British Art of to-day. It has, to begin with, an originality and a sturdy independence of its own, but it also has another very marked characteristic in its readiness to adopt, to assimilate, and make its own what is good—perhaps even sometimes what is not so good—in the Art of foreign countries. Thus, while we have seen in the last half century artists of purely English habit form a school and rise to the highest eminence, on the one hand, through an ardent study of Nature, as seen with English eyes, amidst English surroundings, as in Millais, and, on the other hand, as in Rossetti and Burne-Jones, through a sympathy, also peculiarly English, with the

EXQUISITE TRADITIONS OF THE PAST

in poetry and painting, we have also seen numerous earnest students who, less self-reliant, and feeling that the English Art of Hogarth, of Reynolds, of Gainsborough, and of Turner, had so worked itself out in the course of years as to have degenerated by the middle of this century to a somewhat trivial mannerism, went abroad to Germany, to Belgium, and to France—principally to France—to acquire the instruction which they perceived was not to be had at home. As, my Lord Mayor, you have said, our artists have taken many a lesson from our French friends. Among these I may cite, first, Dyce—an artist of the highest gifts, now almost unrecognised, whose style was inspired by the rather pedantic resuscitations of Overbeck and Cornelius—and more conspicuously Leighton, our great president, a distinguished example of an Englishman, whose studies were almost cosmopolitan, bringing to his own country and applying in his own way the brilliant and accomplished style which he had acquired abroad. Both these distinguished men took the best that was to be had from foreign sources in their time, but neither of them was

A SERVILE IMITATOR

of any school, and they always remained individual and English. But the greatest impetus to this desire for learning more than could be obtained at home was given unquestionably by the Exhibition at Paris in 1855, the first International Exhibition of Art.

That Exhibition opened the eyes of our countrymen to that brilliant school of painting then at its zenith in Paris, while it showed us, no doubt, some of our own shortcomings by the close comparison which could there be made with the splendid accomplishments of French Art. It is hardly too much to say that to English artists of that time the names of Ingres, Flandrin, Gleyre, and other distinguished representatives of the classic school in Paris were virtually unknown; and still less known, if possible, were Delacroix, Decamps, Hébert, Marilhat, Robert-Fleury, and a host of others who formed the romantic school. I well remember the effect of that exhibition upon myself, and the enchantment of seeing for the first time the collected works of Decamps, a conspicuous feature of that exhibition; of Hébert, of Delacroix, and of Hamor, that most delicately fantastic of the Neo-classics.

A NEW HORIZON

was opened out before my eyes, their works were a revelation, and I was, I believe, the first of our artists who went to Paris to study. Soon others followed, more numerous as years went on, and drawing from that great school some of the qualities, both solid and brilliant, which characterised it and infused fresh vitality into English Art. The Art of landscape painting also, in common with the rest of our school, had at that time lapsed into a conventionalism which smacked of the landscape of the stage, and had lost touch with Nature; and it was contact with the powerful French school of that time, led by Rousseau, Daubigny, Corst, Dupré, and others, quite as much as the more elaborate fidelity and earnest study of nature of the Pre-Raphaelites at home, that so invigorated our landscape artists that they are now, I think I may say, second to none. Thus the Art of Constable, to which you, my Lord Mayor, have already alluded, and to whose influence the French painters readily admit their own great school of landscape was due, has returned to us after long years from across the Channel in a new and invigorated form. M. Armand Dayot has been good enough to express a hope that we shall put forth our best efforts for the forthcoming Exhibition of 1900 at Paris. If we do so I am certain that we need fear no competition, for I take it that British Art can now make a display very different from that which we were able to put forth in 1855. If so, it will be due not only to the force of native genius as displayed in our greatest men, but to the English desire to learn wherever there is something to be learnt, and to the English capacity for adapting and appropriating what is best in the Art of other lands, as we have adapted and appropriated to the best of our ability what we have learnt from our brilliant neighbours across the Channel.

The Cook Street Arcade, Liverpool, is so far advanced at the Castle Street end that it is almost ready for use. The hoardings have been taken down, revealing some half-dozen archways, the divisions between which are faced with choice polished marble, whilst over the arches is some beautiful carving in stone. When completed, the arcade will undoubtedly considerably enhance the appearance of the thoroughfare.

SINCE the Workmen's Compensation Act of 1897 was passed some insurance offices have made a very good profit by taking upon themselves the liability of employers in the matter of injuries received by their workmen. Acting on the co-operative principle, a number of employers connected with the clay-working industry have decided to form what is styled the British Clay-workers' Mutual Insurance Corporation Limited, which shall be for the mutual benefit of its members. The nominal capital of the company is £100,000, of which £20,000 is being issued in shares of £10 each with £1 called up. Further details may be obtained from Mr. H. Greville Montgomery, 43, Essex Street, Strand, W.C., and the information will, we think, show the substantial advantages offered to brickmakers, &c., by this new Company.

ELECTRIC BRACKETS.

SOME RECENT AND NOTEABLE EXAMPLES.

THE present day demand for sumptuousness is perhaps evidenced in the minor matters of taste and of art, more than in things of greater supremacy. Wealth alone



6364.

can pack a house full of famous paintings, but it is something more which adorns the rooms with really artistically designed chandeliers, electric brackets and the like. Of this latter, we illustrate three or four beautiful examples, which are manufactured by Messrs. Perry & Co., of



6418.

17, Grafton Street, Bond Street, W. We give a brief description of each design, which reveals its own merits sufficiently without the help of any wordy laudation.

No. 6363.—This is a two-light electric bracket in the Louis XV. style, made right and left hands, with scroll backs richly

moulded with palm branches and delicate "contournés," and carrying iris glasses to cover the electric lamps. Height 18½in., width 12in.

No. 6364.—Here is a somewhat similar bracket to 6363, but in the Régence style, rather heavier, with iris branches in ormolu to correspond with the iris glasses. Height 20in., width 14in.

No. 6357.—This torch bracket, in the Régence style, has the open back in well moulded ormolu, with delicate curves and scrolls enriched with leafage bound on with ribbons; the torch in bronze is encircled by a myrtle wreath in chased ormolu, and the electric light is covered by a globe to represent a flame. This flame shape globe, with internal orifice to admit of an electric lamp, was registered by Perry and Co. under No. 251,604. Height 26½in.

No. 6418 is a two-light electric bracket in the Louis XVI. style, with scarf back in ormolu, to which the branches are tied by a knot in the scarf, and having iris glasses to cover the electric lamps. Height 28in., width 14in.

No. 6449.—This illustration shows massive electric brackets in the Louis XVI. style from



6357.

an old model of the period, in ormolu with therm shape backs terminating with seed pod at the bottom, having acanthus foliage in the front and vase with festoons at the top; the branches are fluted and heavily clothed with acanthus leafage and seed pods, laurel festoon and drops suspended between them; the crystal glass ray shape globes are supported in flame pattern ormolu holders and enclose the incandescent electric lamps. The effect of these is extremely good. Height 23in., width 16in.

THE Westminster Vestry has adopted a scheme for the formation of a subway to facilitate vehicular traffic and to provide a safe crossing for foot passengers under Parliament Street and Bridge Street.

The parquet flooring in the upper hall of the Walker Art Gallery, Liverpool, having lost its original polish and beauty, in consequence of the constant wear and tear occasioned by the thousands of visitors who have passed over it, is now being renovated. The effect when the various woods—oak, sycamore, walnut, and ebony—are polished will be admirably in harmony with the general rich decorations of the building.

THE NEW GOVERNMENT OFFICES' ARCHITECTS.

A CORRESPONDENT signing himself "F.R.I.B.A.," writes to the Times as follows, *re* the selection of architects for the new Government offices: "It is to be hoped that the Government have made no mistake in the selection of the two architects to whom will be entrusted the design of the new buildings. One of the appointments is at any rate quite unexpected on the part of the profession. I



6363.

allude to that of Mr. William Young. You refer in your article to the fact that the Government availed themselves of the advice given by the council of the Royal Institute of British Architects as to the names of gentlemen who, in their judgment, were the best suited to have these commissions conferred upon them. In the list sent in by the Insti-



6449.

tute the name of Mr. Brydon appears, but that of Mr. Young is conspicuous by its absence. The profession to which I belong are naturally anxious to know how this has come about. To say the least, it is so much of a surprise that the First Commissioner of Works and Buildings might reasonably be asked to give an explanation of the circumstances from his place in the House of Commons."

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

August 3rd, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense, which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

M. ALPHONSE LEGROS is designing fountains for the gardens at Welbeck. All those who admire the severe grace and classic dignity of M. Legros's art will be delighted to think that he has such a fine opportunity for the exercise of his special gift for this noble form of decoration. We hope that the example thus set by the Duke of Portland may lead to the cultivation of a branch of Art which, compared with what has been done in France and Italy, has been so greatly neglected in this country.

SIR HENRY IRVING managed to impart an amusing piece of by-play into the actual laying of the commemoration stone of the new theatre at Kennington. He used very skillfully—for his is a practised hand—the handsome silver trowel with which the architect supplied him. He carefully levelled the mortar, and then struck the stone with the mallet. So far this was quite in accordance with custom. But after the usual formula: "I declare this stone to be well and truly laid," he paused, with mallet again raised, and to the architect said quaintly: "But is that so?" Apparently the workmanship was not all that it should have been, for the stone was retouched, the mallet used again and again. "Is that well done now?" asked Sir Henry, and he and those near him laughed heartily when the architect and the contractor signified their approval.

THE advisability of the Council taking advantage of the Holborn to Strand improvement to erect an Hotel de Ville worthy of the metropolis is urged by Mr. Frederic Harrison. "It is a scandal," he declares, "that the largest city in the world condemns its municipal authority to shift with huggermugger lodgings—mean, unhealthy, and inconvenient. The Council ought to have a seat at once spacious, central, and imposing. When the new avenue is completed, no building in London will in these qualities surpass Somerset House. It should have water communication with Parliament in a few minutes, and up and down Thames in special electric launches. The new Broadway will connect it with the north, with the Courts of Law and public offices. There is no reason why wills, stamps, audit, and the like should continue to monopolise the finest place of Old London. It should belong to London, and be devoted to London. The vast area to be cleared by the new scheme will offer ample sites whereon modern and commodious rooms might be erected for the miscellaneous departments which are scattered about Sir William Chamber's grand palace."

WITHIN the ruins of the ancient "Pilgrims' Church," which are charmingly situated at the

confluence of the Taff and Cowin, in the parish of Llanfihangel Aber Cowin, near St. Clears, in Carmarthenshire, a religious service has recently been held. This ancient structure has become unroofed, and nothing is left to remind the visitor of its former grandeur but bare walls wrapped with ivy and other encircling plants. The building has been gradually crumbling into decay, and little is left but the walls and tower, whilst the floor, watered as it is with every shower of rain, bears a luxuriant growth of various grasses.

It is associated with many a legend, and here the archaeologist and the tourist may find inscribed in stone the records of the distant past. The old church had been left to decay until the institution of the present vicar, who directed his labours to the enclosing of the churchyard and the preservation of what remained of the ancient church. It is called the "Pilgrims' Church" on account of the pilgrims who lie buried there. The building is of Norman style, having a massive square tower at the west end, now clothed with ivy. On the right hand as one enters the tower from the churchyard there is to be seen a holy water stoup, and at the south entrance into the nave there is another. On each side of the door which opens from the tower into the nave are to be seen small square nooks, much broken. In the north wall, near the chancel arch, is a small opening containing seven steps in a dilapidated condition. In the churchyard are to be found the graves of five holy palmeres, with carved symbolical effigies on their tombstones in a good state of preservation.

A CORRESPONDENT sends us a cutting of an advertisement recently appearing in a Natal newspaper. The announcement is as follows:

F. UPTON,
Government Surveyor and Architect,
228, CHURCH STREET,
Maritzburg.

The architect's life in South Africa, freed as it evidently is from the niceties of professional etiquette and other burdens of an older civilisation, should be sweet indeed! But one would have thought that Natal was a sufficiently wide field for the activities of the "Government Surveyor and Architect" without breaking new ground in his unofficial but professional rôle.

WHAT are termed "the arbitrary proposals of the London County Council on the subject of fire protection," has called forth a cry from the City Press. "It will be remembered," it says, "that, urged to action by the Cripple-gate fire, the Building Act Committee decided that every factory must be fitted with a stone staircase so as to facilitate the escape of the workers in the event of a fire occurring. For all new buildings this may be a very wise precaution, but to make the regulation retrospective would be a cruel injustice on property owners, as has been urged from the very first, as in many instances the construction of such a staircase would involve a terrible expense without any corresponding advantage being obtained.

"At the outset the committee appeared to be indisposed to listen to any argument, but now, happily, following on a deputation from the London Chamber of Commerce, they are showing themselves rather more amenable to common sense, and exhibiting a desire to grant what is asked for. As a result, alternative suggestions are to be considered, and the Chamber, in a circular that has been issued, expresses its willingness to assist traders in formulating them. What is more, the Chamber announces that it proposes to consider test cases, supporting them where necessary. In order that this action may meet with the favourable reception that is looked for, it is, of course, advisable for a united front to be shown. Traders, therefore, should make a point of communicating with the Chamber when any doubts and difficulties arise on the point at issue."

In the forty-fifth report of the Department of Science and Art, just issued as a Blue-book, it is stated that during the decennial period from 1888 to 1897 there was a considerable increase in the number of schools, of classes, and of pupils under instruction in science, but as compared with 1896 the number of schools decreased in 1897 by 159, while the number of pupils increased by 3442—from 194,354 to 197,796—and the number of classes in different branches of science decreased by 1398—from 10,500 to 9102. These last figures, the report states, are of no significance as a means of comparison, owing to the increase in the number of schools of science—formerly termed organised science schools—the separate classes in which are not counted as separate classes in the above figures. The decrease in the number of schools is, no doubt, largely due to the absorption of the smaller schools in the larger and better equipped schools maintained or established by local authorities under the Technical Instruction Acts.

BUT the increase in the number of students under instruction—the really important factor—is a satisfactory indication that the value of the instruction given in these schools continues to be appreciated, notwithstanding the great increase of classes in more specially technical instruction. The number of individual students examined was 101,526, against 99,818 in the previous year; the number of papers worked was 151,212, against 152,630; the number of papers passed was 62,261, against 62,886; and the number of first classes in the elementary and advanced stages was 43,073, against 41,419. The payments to science schools on results and attendances amounted in 1897 to £172,495, and in 1896 to £157,916. In the art division during 1897, in 20,493 elementary day schools, 2,286,431 scholars were taught drawing and examined—an increase of 332 schools and of 36,361 scholars. There were also 17,841 pupil-teachers and ex-standard scholars examined. The grants amounted in 1897 to £181,065, and in 1896 to £176,224. In 1083 evening continuation schools 51,633 scholars were taught drawing, the grants earned amounting to £2702. In the previous year the figures were 873 schools, 40,459 scholars, and grant £2105. Classes for manual instruction in connection with 1271 elementary day schools were examined and earned £25,781 on account of 106,423 scholars—a large increase. The number of art schools examined was 1849, against 1851 in 1896, and the number of students was 146,720, against 146,193. Of the 146,720 students, 142,293 were of the industrial class. The expenditure of the Science and Art Department during the year 1897-98 was £814,862.

THE tenth annual meeting of the Society of Art Masters was held in the Lecture Theatre of the South Kensington Museum last week, Mr. W. Scott, of Norwich, presiding. Mr. F. Ford, the secretary, read the report of the Council, which, after congratulating the members on the continued progress of the society, said the matters that had chiefly engaged attention during the past year had been the new scheme of attendance grants, the associateship of the Royal College of Art, and the contemplated Bill in relation to secondary education. With respect to the attendance grants, statistics had been obtained from the members showing that the new scheme would be disastrous to many schools, but assurances had been given that this was not intended, and that modifications of the scheme had been made to guard against the danger. As to the associateship of the Royal College, the Council regretted that their representations had been unavailing to prevent its limitation to South Kensington students, the desire of the society being that the distinction should be conferred on all masters who had for a certain period been in charge of schools as successful teachers. The Bill dealing with secondary education, it was understood, would only be introduced and debated in the House of Lords this session.

MR. SCOTT was re-elected president of the Society, and in the course of his address ex-

pressed the hope, in view of the national importance of the schools, that the modifications of the new attendance grants would prove satisfactory. He referred to the question of the registration of teachers, and, with regard to the proposed secondary Education Bill, said it was very important that the schools should not be handicapped by any new legislative action, but should rather be further encouraged and developed. In reference to the Associateship of the Royal College, he hoped that all successful and capable masters would yet be recognised by the Science and Art Department whether they were trained in a college or not. Mr. W. Wallis was re-elected vice-president, and the council having been elected, the meeting, after considerable discussion, passed the following resolution unanimously:—"That the Science and Art Department be requested to consider whether they cannot consent to confer an honorary associateship of the Royal College of Art on all art masters wherever they have been trained who possess the certificates required by the conditions attached to the associateship, or, having fewer certificates, have been successfully engaged in teaching in schools of art for a certain number of years." The meeting was adjourned.

THE colour print is the fad of the moment—the big game of the collector, who, however, cares for it only when it can boast a fairly respectable age and when it is more or less rare. The amusing experiments made in Paris and Munich to-day have not the charm for him of the most indifferent little Bartolozzi. But still, if the value he gives to this sort of work is largely fictitious, some of the old colour prints are really very beautiful, while almost all have a certain decorative quality that is not unpleasing. They have something of the quaintness, though with a difference, of the "cock-eyed primitive" and its golden background. If, with Mr. Ruskin, you can see in William Hunt the breakfast or morning-room artist, you might describe the colour print after Morland, or Stothard, or Hamilton, as the Art for the cottage.

At the Fine Art Society's many of the prints in their little oval frames suggest the very rooms upon whose walls they should find an appropriate place. The collection is decidedly interesting and representative. There are examples of the principal English engravers of the period; there are even two or three Debucourts. And it is curious to note that the most successful prints of the old days, as of our own, are those in which the colour scheme is the simplest. Where a purely conventional scheme of greens and reds is employed, or where, as in the reproductions of Downman, there is just a touch of colour, the effect is far more decorative and dainty, is far truer in fact than when there is an elaborate attempt to give the exact colour and tone of a picture, as in several of the engravings after Morland. But, when all is said, the truest, the most faithful, the most sympathetic copies are those that make no attempt whatever to reproduce colour: the admirable plates of Wilkin and Watson and Ward and Green and Smith. The Fine Art Society's collection includes a few delightful mezzotints by the masters of the Art, and it is in their rich blacks and silvery greys that you must look for good colour. The engraving after a picture can never be an exact facsimile, and the more the conventions and the reproductive medium are respected, the more satisfactory is the result. We think, therefore, that it is in original rather than reproductive engraving that the artist introduces colour to best advantage; the reason probably why the colour prints at the Champ-de-Mars Salon almost any spring are—though most people refuse to admit it—of greater artistic merit than the earlier prints as you see them in such a collection as the one now on view at the Fine Art Society's.

It has been current of late that the Old Bailey was at last to come down, and that the plans had been passed for the New Bailey that was to take its place. A representative of the Daily Graphic, making inquiries at the Guild-

hall, discovered that this did not exactly represent the state of the New Bailey's development. The plans, a clerk in the City Surveyor's office informed him, had been drawn up years ago, but they were not quite ripe for publication yet. In fact, the clerk believed that they were at that moment under discussion at a meeting of the City Lands Committee, at which the City Surveyor himself was present. The Press representative thereupon sent in a message to the City Surveyor to ask if he might see the plans, or—in the event that they were not quite complete—if a day could be named when they would be so, and when he might profitably inquire again. The messenger returned after a few moments with the City Surveyor's compliments and the message that the enquirer might "inquire again in twelve months." The plans are, in fact, in an embryo stage. Her Majesty's judges have given their approval to the reconstruction of the courts, but that is nearly as far as the scheme has arrived. Neither the cost nor the incidence of the county rate to pay for them have yet been decided upon, and prosecutors and counsel, witnesses and prisoners, may confidently reckon on breathing the Underground Railway air of the Old Bailey for some years to come.

THERE are now to be seen, at the South Kensington Museum, in one of the galleries of the South Court, three designs of great interest by the late Sir Edward Burne-Jones, Bart. The most important work is the design for the mosaic of the Tree of Life in the American Episcopal Church of St. Paul, Rome. This was painted in 1892, and the glass mosaic was produced by Salviati, of Venice, in the following year. The second is a water-colour drawing of the symbols of the Evangelists, a design for portion of a stained glass window at Castle Howard. The third design is due to the liberality of Mr. C. Fairfax Murray, who presented to the Museum a model, showing the scheme of the mosaic decoration in the apse of the same church in Rome. The subject represents the Heavenly Jerusalem. To the right are the three Archangels, Michael, Raphael, and Zophiel, and to the left the Archangels Chemuel and Gabriel, the place for Azazel (or Azrael) being vacant. Above is a company of angels, and beneath are the four rivers of Paradise. The model has unfortunately been somewhat damaged in transit from Rome, so that the two figures, probably Zadkiel and Uriel, in the outside arches, are wanting.

SHOREDITCH is one of those quarters of London which might be made distinctly more endurable and less depressing if they were less smoky and grimy. The Great Eastern Railway Company has just been convicted at Worship Street for permitting black smoke to escape from their electric lighting works in Shoreditch High Street. The company produced evidence to show that the furnaces and boilers were of the best construction, and properly worked, and that the stokers were competent. Nevertheless, it was proved that for eighteen minutes out of twenty-eight black smoke was pouring out of the chimney-stack. The magistrate made an order for the nuisance to be abated forthwith, but, of course, the inevitable appeal will come in to interpose some considerable delay. Nevertheless, it is gratifying to see that the authorities are sticking to their guns, and continuing to prosecute offenders who do so much to make London hideous.

MR. ALGERNON ASHTON writes as follows:—Please permit me to draw your attention to the present state of the fountain next to Drury Lane Theatre, lately erected by public subscription to the memory of Sir Augustus Harris. Passing there the other day, I was surprised and grieved to see that this handsome fountain looked like going fast to decay, for not only was there no water at all (and apparently had not been for some time), but the basin itself appeared to be a receptacle for peashells and other rubbish. Is it really too much to expect some of the members of the committee who were the means of providing

this memorial to take the small trouble of keeping it in decent order?

THE Grand Trunk Railway, among other devices for reducing its working expenses, does its whitewashing by steam. It has a regular whitewash train—or rather two trains, one for each division. The apparatus consists essentially of an old engine in which the boiler does duty as a receiver. Into this the whitewash is sucked from barrels as required, and there it is kept in agitation by a Westinghouse pump. From this it is ejected by another brake pump as a fine spray, so that a man can lay the colour on as if he were watering a garden with a hose. In this way he can whitewash two or three stations a day. The most curious feature of the engine, for a Canadian one, is that it has a straight cylindrical funnel so that when it goes into the shops the nearest smoke-jack can be drawn over it like a sleeve, and it can smoke away merrily without distributing any smuts on the freshly-whitened walls.

WHATEVER the dinner, "In honour of Art," at the Mansion House, lacked in the way of attendance of French artists was made up for by the large number of members of the English Academy who were present. Probably there has seldom been a gathering, outside the Royal Academy banquet, when so many of these have been present. The Egyptian Hall has recently been thoroughly redecorated, but we are afraid that the statuary and the gaudy banners can hardly have impressed our friends from over the water with civic ideas of art in form or in colour. The reception rooms, after the dinner, were hung with pictures from the Lord Mayor's collection, showing that not only is he a patron of English Art in the matter of English painters such as Turner and Reynolds, but of French painters such as Troyon. It is not generally known that the Lord Mayor started life in a humble walk of art—namely, as an engraver of silversmith's work; a fact which in no wise abates one's admiration for him in his present position.

THERE is but little likelihood of the National Monuments in Churches Bill becoming law this session, although there would probably be but little opposition to it in the Commons after it had got through the Lords. The reason for the Bill is a sound one (says the St. James's Gazette), for at present the ordering of everything is at the disposal of the Dean and Chapter, and what one Dean approved his successor might disapprove. The Bill would provide that when a national monument had been erected nothing could be done to it save with the permission of the Crown and Parliament.

THE railway companies seem to be bestirring themselves to do away with the reproach, which has so long attached to them, that they are the most inartistic corporations of any in existence. The example which was set by the energetic Great Eastern Railway Company, in placing in their carriages photographs of the various points of interest on their system, has now been copied by almost every railway in England; although some of them still persist in adhering to the terrible coloured illustrations of their various hotels, which are generally positively infantine in their elevations and drawing. Fresh departures have been made this season in the attractive holiday leaflets issued by the Great Northern Railway Company.

THE proposal to establish some permanent memorial to the late John Millais, P.R.A., was carried a step further the other day, when an important meeting of R.A.'s and others was, by permission of the Prince of Wales, held at Marlborough House. The Prince, owing to his recent accident, was unfortunately unable to preside, as he wished to do, and in his absence the Duke of Westminster filled the presidential chair and submitted the proposal to the meeting. The scheme has assumed no definite shape so far, but a sub-committee of a highly representative character has been

appointed to report to the general committee the form the memorial shall take. Until this has been done no appeal will be made to the public for subscriptions. It only remains to be said that the general committee is as influential and representative as such a body could be.

SOME panels of old Brussels tapestry realised good prices at Christie's, a set of three panels, illustrating the Metamorphoses of Ovid, selling for £700; six panels with the history of Noah for £300; four panels with landscapes for £450; and an oblong panel with a boar hunt in a forest, 98 guineas. A panel of old Gobelin tapestry, representing the trial of Susanna, fetched £105. In the same sale a pair of Louis XVI. marqueterie encoigneurs, mounted with chased ormolu, the property of the Earl of Haddington, sold for £185.

THE variations tenders occasionally exhibit constitute a standing marvel. In three cases referred to in the current agenda of the London County Council this singular characteristic is strikingly exhibited. In one case the lowest tender was £2630, and the highest £6912; in a second the lowest was £16,900, and the highest £47,000; and in the third the two sets of figures were respectively £6134 and £13,750. What a fine profit would accrue in each case to the contractor at the top of the list, were he given the order!

THE long-talked-of recognition of the part played by Oliver Cromwell in our national history seems at last to have taken definite shape. By the generosity of Mr. Charles Wertheimer, Bernini's bust of the Protector, which was formerly in Lord Revelstoke's collection, has found a resting-place in the Houses of Parliament. It is placed at present in the Lower Waiting Hall of the House of Commons. Before many weeks are past a larger memorial, Mr. Hamo Thornycroft's colossal statue of Cromwell, will be ready for erection. It is at present being cast. The site for it has not yet been finally settled, but it will probably be in Parliament Square.

THE re-housing of the County Council is a standing grievance at Spring Gardens, and it was again brought to the fore by the Chairman's review of the work of the County Council during the past year. Mr. McKinnon Wood recommended members of the Council, instead of viewing overcrowded and insanitary areas, to view the Council offices now scattered about in Spring Gardens, Craven Street, Whitehall Place, Pall Mall East, St. Martin's Lane, and Charing Cross. In this way Mr. Wood thinks a long and profitable afternoon might be spent. It would be profitable, indeed, if very soon a new scheme could be brought forward to erect a City Hall worthy of London. Perhaps the solution will be found when the new Strand-Holborn street is commenced and the Council has to deal with the cleared areas; but meanwhile the Council were again called upon last week to incur fresh expenditure in not merely hiring but erecting additional offices for the staff.

MR. E. WHITE WALLIS, the secretary of the Sanitary Institute, has applied to several committees of the City Corporation for the loan of diagrams or models relating to public works in the city, as exhibits in connection with the autumn congress of that Institute, to be held in Birmingham next September. The Insanitary Property Committee is one of those communicated with, and they have given sanction for the loan of the plans of the labourers' dwellings in Gildart's Gardens and Ford Street. These will undoubtedly arouse considerable interest, as the general arrangement of the buildings has already been favourably commented upon by the representatives of municipal authorities who have visited Liverpool from far and near to inspect them. The Lighting Committee have referred Mr. Wallis's application to the city electrical engineer, and probably some acceptable loans will be offered from that department.

AN INTERESTING LANCASHIRE CHURCH.

ABOUT three miles north-west of Ormskirk lies the ancient Parish Church of Halsall. It has not the massive and imposing aspect of the ponderous, weather-worn, time-stained pile beneath which lies the dust of many generations of the House of Stanley; nor is it so rich in storied monuments, antiquarian associations, and legendary lore. Its history, however, even though the ecclesiastical archives yielded no information—which is far from being the case—could be constructed in a great measure from the architectural relics in which the church abounds. These belong to periods extending back to the Early English, which may be put at about the thirteenth century. The clustered shafts supporting the font are evidently of this period, and excavations in all probability would reveal

NORMAN AND SAXON REMAINS,

since the church is dedicated to that holy man, St. Cuthbert, whose name is associated with other foundations in the County Palatine. The church has an octagonal tower surmounted by a spire. Standing at a slight elevation, on the edge of a wooded demesne, it has a charming setting. At the first glance from the roadway it has a somewhat modern look, but a nearer inspection of its exterior reveals its ancient character. It is abundantly supplied with gargoyles—those ugly, grinning demoniacal masks which the mediæval craftsmen carved with so much skill, and in the designs of which they displayed such a fertile, not to say ghoulish imagination. They are all here, these impish figures, as if imported from the nether world, leering at the spectator—the foul fiend himself, with his cloven foot, and a whole host of eerie, nondescript creatures. But the carvings are not all of the grotesque and diabolical order. There are some heads and faces, both outside the church and in, that are even

BEAUTIFUL IN THEIR EXPRESSION.

The finger of time, and the more ruthless hand of the vandal, have failed to destroy the serenity of their aspect. The most interesting parts of the church are the chancel and the north chapel. In the east chancel wall to the north, and high up above the glowing triptych, representing the vision of St. John the Evangelist, there is a beautifully ornamented niche, which, perhaps at one time, contained the figure of a saint. The canopy is richly carved, and the corbel on which the figure rested contains a design of oak leaves and acorns in high relief. In the south wall are four arches, three of which form the sedilia. The fourth and the easternmost bay contains a piscina, the bowl being beautifully carved. In the centre of the exterior of the bowl there is a carved mitred head in high relief, which is believed to represent St. Cuthbert. At the terminations of the arches heads are carved, one of them being a bishop, wearing his mitre, and another, a close-cropped head, with a curious, conical, knob-crowned cap. There are no less than

FOUR PISCINAS IN THE CHURCH.

The one just named has no drain, and is accordingly believed to have been the holy water stoup of the porch. The recumbent figures of a knight and his lady, beautifully carved in alabaster, occupy an altar tomb on the south side of the chancel. The angry blood mounts to one's face as one reads the placard placed on this tomb, appealing to the looker-on to respect the monuments of the dead. But there are cogent reasons for the entreaty—some thousands of reasons, in fact. Every scratch and incision made by Tom, Dick, and Harry, with convenient jack-knife, on this hard, polished stone, constitutes a valid reason for the injunction. The knight is literally scored from head to foot with the initials of generations of vandals and desecrators. No erratic block of the ice age was ever grooved and striated by the action of grinding glaciers as these poor monuments have been by the implements of would-be purchasers of a cheap immortality. It is some consolation, however,

to know that this passion for cutting dates and initials on our monuments is not a product of modern times. It seems to be a failing of the race. On a buttress in the north chapel some visitor has carved his initials, with the date 1682, and, for some unexplained reason, close by the inscription has been faithfully reproduced. The armour-clad knight and the lady lying by his side—her face mutilated—are stated to be Sir Hy. Halsall, who died in 1523, and his wife Margaret, daughter of James Stanley, Bishop of Ely, and brother to the first Earl of Derby. Opposite, against the north wall of the chancel, there is the effigy of an ecclesiastic, with his hands clasped in prayer, also carved in alabaster. His tunsured head rests upon a cushion, and at his feet reclines a dog. Over the tomb there is a magnificently decorated arch. The effigy is considered to be that of the Rev. Richard Halsall, Rector of Halsall (third son of Sir Hy. Halsall), who directed by his will, proved in 1563, that his body should be buried "in the chancel of the p'iche church of Halsall afore sayd in the towmb made in the wall upon the north syde of the same church." Some of the choir stalls are of oak, finely carved and black with age. Those on the south side contain misereres

CARVED WITH QUAIN DESIGNS,

like the seats in the choir stalls at Whalley Parish Church that were removed from the Abbey. The subjects of these carvings on the south side are given as follow—from east to west—by Messrs. Hy. Taylor and R. D. Radcliffe in "The Transactions of the Historic Society of Lancashire and Cheshire":—(1) Two naked men wrestling, each apparently encouraged by a monk. The supporters are conventional flowers, delicately carved. (2) An angel, winged and feathered, holding a key in either hand, and wearing a cap, in front of which is a plain cross. The supporters are dragons. (3) Head of a venerable-bearded man. The supporters are conventional roses. (4) An eagle in the act of flight. The supporters are small eagles. (5) Fox and goose. Supporters: Conventional Tudor roses, boldly carved. (6) An angel, winged and robed, holding a book and wearing a cap, with a plain cross in front. Supporters: Tudor roses. The only remaining ancient miserere on the north side represents two dragons fighting. The divisions between the stalls are massive in character and well moulded. They are further

ORNAMENTED WITH CARVINGS OF ANGELS,

some of them bearing shields. The desks in front of the boys' seats contain some fine ancient carving; the ends, 4in. thick, are richly panelled and carved. The final of the western stall end, on the south side, is the eagle and child (the Derby crest); that on north is a lion. "These misereres," the authors of the article in question observe, "were carved before the publication of the 'Mortæ Encomium,' in which Erasmus so vigorously lashed the monks on their worldliness, sensuality, and folly. The English are proverbially a sport-loving nation, and no Englishman, however unsportsmanlike, could seriously object to the wrestling match represented in one of these carvings; but nowadays we should hardly expect our parish clergy to act as backers in such a contest." One of the chief glories of the church is the door and the doorway, by which the north chapel, now used as a clergy vestry, is entered from the chancel.

THE MOULDING OF THE ARCH

is remarkable for its beauty and its extent, and the upper portion of the door is richly carved. The massiveness of the lock and the key—nearly 1ft. long—are striking features. "A noticeable feature of the chancel," state the writers above referred to, "which has been the subject of much comment, is the hand held up in benediction, from the apex of the great east window hood mould. It is carved in somewhat flat relief on the face of a large block of stone, and towards one end of it. This stone has apparently been inserted, and it has been suggested that it encloses relics."

LONDON COUNTY COUNCIL.

REVIEW OF THE YEAR.

A YEAR'S work of the London County Council is a subject of no little magnitude when it becomes necessary to treat it within the compass of even a tolerably long address. Many phases of the work must necessarily be neglected or passed over with only a few general remarks; and such remarks in Mr. McKinnon Wood's speech, in reviewing the work of the past twelve months at last week's meeting of the Council, as contain a "building" interest we report:—"I shall, I am sure, be pardoned if I do not attempt even a reference to much of the work which is carried on so adequately by our committees as to pass almost without remark by the Council. For example, we all know how indispensable is the work of the Building Act Committee, and most of us are aware that its members devote themselves for several hours at each meeting to a mass of dry but important detail; yet it would be impossible to give any adequate idea of what they accomplish in such an address as this. The work of that committee, like that of the Asylums and several other committees, is an illustration of the purely administrative labour that is undertaken cheerfully and steadily week after week without hope or desire of public recognition.

PUBLIC HEALTH.—MAIN DRAINAGE.

A primary duty of the Council is the service of the public health. I have no intention of dwelling on the familiar facts connected with the past improvement of the main drainage system and the condition of the lower river. You have heard that there are enthusiasts who dream of restoring the "silver Thames" to its ancient pride as a salmon river. I do not know whether this hope is shared by the committee, but it is certain that they are not content to rest on their oars, or be satisfied with the great improvements they have effected if further improvements prove to be practicable. They have, therefore, been engaged for some time past in experiments in the filtration of sewage through a coke filter. At the southern outfall the raw sewage has been passed through a 4ft. coke filter for several weeks. A purification of 65 has been obtained, and better results are anticipated as the condition of the filters become more matured. The depth of the filter is now being increased to 8ft., and the experiment will be continued with a single filter, and also with two such filters in series. The sewage will, in the second case, therefore, be treated to double filtration. A small experiment conducted on this principle gave a purification of 95 per cent., producing an effluent incomparably purer than the river itself. At the northern outfall a large 6ft. filter is now being used for filtration of the sewage effluent, which has already been subjected to chemical treatment and sedimentation. An average purification of 80 per cent. has been effected, and goldfish have lived in this filtered affluent for over three weeks.

HOUSING AND TRAMWAYS.

The next department affecting the public health is that connected with the housing of the people. It is generally recognised that the conditions under which the committee is compelled to work are too rigid and stringent, and there is a general hope that such relief as is consistent with financial stability may be granted by the Treasury. The obligation, for example, to replace the cost of the land within sixty years is undoubtedly not in accordance with commercial practice, or necessary to meet the requirements of sound finance. One point appears clear. The population of London is, as regards the middle class and a considerable portion of the upper working class, a very mobile population, in this sense, that it makes no difficulty in finding house room at great distances from its work in any direction in which travelling facilities are provided. It is a lower class which is affected by the problem which we are considering—a class which tends to crowd neighbourhoods in which

work, often casual work, can be obtained. In such neighbourhoods, as a rule, the value of land is enormous, and the cost of housing prodigious. Obviously, to increase the mobility of this class is greatly to assist solution of our problem. We hope that efforts to enlarge the number and convenience of workmen's trains may be successful, but we have one great means of communication which will soon be largely in our hands, and for the development of which we shall be responsible. I cannot help thinking that much is to be hoped from the development of the tramway system and the employment of electric traction. It would be immensely to the advantage of London to complete, accelerate, and cheapen this great means of communication, which is for many reasons one of the most convenient for a working-class population. Our lease to the North Metropolitan Company gives us rights of developing the lines in co-operation with the Company, the exercise of which circumstances beyond the control of the committee have hitherto hampered. I hope that the difficulties which have arisen may be removed by the public spirit of the local authorities interested. The London Tramway Company's lines south of the Thames will be in the possession of the Council on January 1st. In this case it is important to note that the Council was able to take such action as ensured to the ratepayers the profits of the line from the date on which the Council was legally entitled to purchase. The Council has decided to retain the control of these lines, and we shall have in our hands not only a valuable municipal asset, but a potent instrument for combating the evils of overcrowding, and for adding to the comfort and convenience of the travelling public.

STREET IMPROVEMENTS.

Geographically connected with the clearance of the insanitary Clare Market area, which the Council is now carrying out at an estimated cost of £216,000, is the street improvement from Holborn to the Strand. There appears to be a general consensus of opinion that the proposal will result in a magnificent boulevard which will add to the dignity and beauty of the capital at a minimum of cost to the ratepayers. A road 100ft. in width will take the place of narrow and tortuous lanes, and it is intended to make provision that the buildings erected should be architecturally worthy of so fine a site. As has been shown by the chairman of the Improvements Committee, Mr. Shaw Lefevre, who brought to its service the experience of a First Commissioner of Works, it may be expected, even financially, to result in ultimate benefit to the ratepayers. In connection with this improvement housing accommodation will be found for the full number of persons displaced. Complementary to this scheme are two other schemes previously sanctioned by the Council, the removal of the block of buildings at Holywell Street and the widening of Southampton Row, which will be carried out by agreement with the chief landowner, the expiry of leases affording a favourable opportunity. The total estimated cost of the street improvements for which Parliamentary powers will be sought in the next session amounts to £1,100,000. The improvements which the Council is at present engaged in carrying out will cost nearly 1½ million sterling. From March, 1889, to this date, the Council has voted an expenditure of 3½ millions on street improvements apart from the clearance of insanitary areas, and the total length of streets affected amounts to 5½ miles.

PROTECTION FROM FIRE.

In another direction the Council has resolved unanimously to increase its expenditure, namely, in adding to the number of its fire stations and otherwise improving its appliances for the protection of the metropolis from fire. For this purpose it has sanctioned an additional expenditure of £197,000 on capital account; and the increase in annual maintenance is roughly estimated at about £30,000 a year. Other committees, the Building Act and the Theatres Committees, are charged with precautionary duties in regard to fire. Warned by the awful calamity in Paris, the

Theatres Committee has introduced a Bill requiring a licence to be obtained from the Council before buildings may be used for bazaars, such licence to be obtainable at any time. New rules have also been made for the prevention of accidents in the use of the lime-light and cinematographs in places of entertainment. The Public Control Committee report that they have investigated 301 cases of lamp accidents, in which 36 lives were lost.

WATER.

The Water Committee has been engaged during the past year chiefly in presenting evidence to the Royal Commission. In consequence, no steps have been taken by the Council for the acquisition of the water supply. Unfortunately, the truce does not extend to companies, and the Southwark and Vauxhall Company have strengthened its position by legalising its overdraft from the Thames, and by increasing its rights of drawing water from the river at a point nearer London than was recommended by the last Royal Commission. The Council succeeded in obtaining the insertion of a provision that no increased claim should be admitted on account of these new powers in the event of purchase within ten years; but I cannot help feeling that, notwithstanding this safeguard, there can hardly fail to be an increase in the cost of purchase as a consequence of the conferring of these new and valuable rights. Although the Council may not be unanimous on other points, I think there will be a general concurrence in the opinion that an early settlement of this question is in the interests of the ratepayers and water consumers of London.

HISTORIC BUILDINGS.

Few Londoners adequately appreciate the wealth of the capital in buildings of historic or architectural interest. The Council last year obtained power to expend money for the preservation of such monuments of the past. With the assistance of various archaeological societies, it is preparing a most interesting register. The first section is about to be printed, and deals with the East End parishes. A register of the whole of London will gradually be prepared.

THE WORKS DEPARTMENT.

The department has been carried on under the new management for a little more than a year. Of the work for which the new management is solely responsible, the amount which has been completed, passed by the committees, and reported to the Council is not yet large. In fact, some of the works commenced under the old management are not yet completed and reported. So far (according to the standards of comparison adopted by the Council) the cost of the estimated and jobbing works carried out entirely under the new management shows a balance below the estimates and the schedule values respectively, and the quality of the work has been satisfactory.

The Victoria Home at Bolton-le-Sands, near Lancaster, was opened a week ago.

New offices have been erected for the Parish Council of Brechin. The design is a free treatment of Scotch Renaissance. The whole work has been carried out from plans prepared by Mr. D. Wishart Galloway, architect and surveyor, Brechin.

There has been unveiled in the Kremlin, at Moscow, the colossal statue of Czar Alexander II., which stands nearly 18ft. high, under a canopy of red Finnish granite. Nine years ago, Alexander III. approved of the design for the statue, and now he also has gone, and it is only the grandson of the great Czar Liberator who can be present at the inauguration of a monument of truly Russian splendour.

The new works of the City and South London Railway have very nearly cleared the river on the south side of London Bridge, and a junction is about to be effected with the existing line at a point a little to the north of St. George's Church—a point about 200yds. on the City side of the Borough station. By the time the station underneath the Church of St. Mary Woolnoth has been constructed, the tunnelling will probably have crept up from the north bank of the river to this point.

New Theatre at Kennington.

SUBURBAN playhouses are springing up on every hand. Already the outlying theatres furnish a very considerable list. The foundation-stone of the new house in Kennington Park Road was laid last week. Designed by Mr. W. R. G. Sprague, the new house will be one of the most complete and sumptuous in London, and may even eclipse most of the West End theatres—no very difficult task, by the way. It will occupy a site having frontages of about 80ft. in Kennington Park Road, 150ft. to South Place, and 90ft. to De Laune Street. The whole of the main frontages will be executed in white Portland stone; the elevations are of a rich Italian Renaissance character; and the more expensive parts of the house will be entered from Kennington Park Road by a few broad steps running the entire length of the 50ft. wide stone colonnade, into a vestibule or lobby, and thence to the grand crush room. This apartment will be:

ONE OF THE FEATURES

of the building, having a length of 42ft. and a width of 22ft. The walls will be of a specially selected Italian marble, and recessed marble columns will add to its beauty, whilst specially designed and deeply recessed fireplaces at each end, will add to the general comfort and luxury. From this crush room will run a bold marble staircase, 27ft. wide, branching off on each side to the dress circle, with a separate and direct entry to each of the stalls. Directly above the main crush room will be a ladies' foyer and the grand saloon, both these apartments being quite separate, and the style of decoration throughout the interior will be French Renaissance, with a free introduction of paintings on ceilings and panellings, whilst the draperies and colourings will be of harmonious and soft tints, with a free use of gold, so that the utmost effect of richness and harmony may be obtained without the making of any one

COLOUR OBTRUSIVE.

The auditorium will have an average depth of 70ft. and a clear width of 60ft., and constructed on the two-tier system, viz.: Stalls, pit stalls on the ground floor, dress circle forming the first tier, or balcony, and the gallery and amphitheatre being the second tier. The decoration of the auditorium throughout will be of the richest description, and the electric light will be employed. Exceptionally large and richly decorated saloons are adjacent to each part of the theatre, the pit saloon having the walls entirely covered by fancy tiling. The retiring rooms have received special care, and will be found as perfect as modern science can make them. Heating and ventilation will be conducted on the plenum system, and fresh air of the required temperature will be distributed by flues and channels to the different parts, the foul or used-up air being gently forced out

THROUGH POWERFUL EXHAUSTS.

A complete set of hydrants and fire appliances is arranged, and the stage will be fitted with a special double asbestos and steel fireproof curtain, controllable by one man. The stage is one of the largest in London, being about 80ft. wide and 50ft. deep. The electric light will be generated by steam plant, and will be of sufficient power to give any possible electrical effects at the pantomime season without diminishing the normal light of the house. The dressing rooms are entirely separated from the stage by stout brick walls and iron doors. Large scenery stores, painting rooms, and property rooms, &c., are included in the scheme, and Mr. Sprague hopes to have the theatre ready by November.

THE plaster cast of the life-sized marble statue of the late Judge Thomas Hughes, the author of "Tom Brown's Schooldays," which is to be erected by Old Rugbeians and others at Rugby, has now been completed and approved by the Memorial Committee. Mr. T. Brock, R.A., who has been entrusted with the work, is therefore now busily engaged upon the execution of the statue itself.

A NEW NORTHERN SHIRE HALL.

A NEW Shire Hall has been erected at Durham. It was formally opened last week. The new building is a conspicuous adornment to the fine thoroughfare of Old Elvet, and indeed to the ancient city in which it is situated. Unfortunately, the site upon which it has been erected stands somewhat in a hollow, and its shape is also peculiar, forming as it does almost an equilateral triangle. However, the difficulties presented by these circumstances have been well overcome by Messrs. Harry Barnes and Fredk. E. Coates, A.R.I.B.A., of Sunderland and West Hartlepool. Standing, as the Hall does, upon rather low-lying ground, and overlooked as it is from many parts of the city, the architect's decision to grace the building with

A TOWER AT THE CORNER

has been abundantly justified in the result. The tower, which is capped by a dome of beaten copper supported by a drum of clustered shafts, not only gives the building greater prominence among the surrounding erections, but adds appreciably to its dignity. Ruabon red terra-cotta is the principal material used in the fine new building, the appearance of which is further enhanced by its roofing of Westmoreland green slates. Around the entire length of the Hall, which has a frontage of 200ft., runs a balustrade. In the centre is the main entrance, through an elaborately enriched archway, approached by a fine flight of Mansfield stone steps some 30ft. in width. The grill is

RICHLY WROUGHT IN HAMMERED IRON,

after passing which is seen the grand staircase. Its steps are of marble, while the balustrade is of terra-cotta, and the supporting columns of polished white Parian. All the corridor floors are "fireproof," and laid with wood blocks. Upon the ground floor the council chamber and committee rooms and the offices of the county clerk are found. The council chamber—one of the most interesting portions of the new structure—is on the axial line of the building, and, though effectually isolated, is of easy access from all parts. Its shape is that of a horse-shoe, perhaps the ideal form of a council chamber; all unnecessary corners, &c., are dispensed with, rendering the acoustic properties almost perfect. At a great height from the floor, the horse-shoe makes a transition to a circle, the roof being neatly coved and domed, with pendentives and

ARCHES ORNAMENTED IN RELIEF.

The walls are adorned with marble columns, panels, and carving, and each of the windows is filled with stained glass representing the arms of the county and of a number of the different boroughs in the Palatinate. Accommodation is provided for 100 members, in addition to the officers and Press. Much attention has been paid to the position of the ante-room, which is hexagonal in shape, and handsomely decorated with rich oak panelling, while the waiting rooms are well placed for the convenience of deputations. On either side of the principal entrance are to be noticed the County Clerks' departments, and the first floor contains the offices of the County Surveyor, Medical Officer, Accountant, and Technical Education Secretary, all the departments being self-contained, while the second floor is devoted to photographing rooms, laboratories, and a library. Excepting the council chamber, which is heated on the Plenum system, the building is warmed by low pressure steam; but all the principal offices have open fires. The original estimate was £18,081, but, this amount being considered too high, the architects, at the desire of the Council, reduced it to £13,875, which sum was accepted. The contract for the whole building was entrusted to Messrs. D. and J. Ranken, of Sunderland; Mr. J. G. Kilburn, of Durham, being appointed clerk of works, and Mr. J. E. Miller, A.M.I.C.E., of Sunderland, quantity surveyor.

Professional Items.

ASTON.—New cottage homes are being erected at Gravelly Hill, Birmingham. The architects' plans were originally drawn for the accommodation of "families" of thirty, but at the instance of the Local Government Board they have been amended, so as to provide for "families" of not more than sixteen, space being found in the altered designs for a total of 250 children. The new buildings face the workhouse on the opposite side of Union Road, and are divided by a broad roadway into two sections, one for girls and one for boys. In the centre of the former is situated the superintendent's house; at the Fentham Road end is a probationary lodge for the detention and examination of new comers, and at the opposite extremity are the church and schools and the infirmary. In each section are seven homes for the accommodation of sixteen children each, and one for twelve children. The boys' department contains workshops. The contract, which amounts to £42,000, has been let to Messrs. W. Lee and Son, of Aston.

BARNESLEY.—The Barnesley Corporation is about to erect an isolation small-pox hospital. The building, which is from the plans of Mr. J. F. Taylor, C.E., borough surveyor, will consist of five blocks of buildings, viz., entrance and discharge block, isolation block, administrative block, main road block, laundry and disinfecting block. The isolation block will comprise male and female wards, with nurses duty rooms. The administrative block will be three stories in height, with a water tower in the centre, and will contain dispenser's room, waiting room, matrons and nurses dining, sitting, and bedrooms, &c. The main ward block includes male and female ward, each 36ft. by 26ft., and two wards for the treatment of special cases, &c. The walls are to be of brick, relieved by mouldings, and stone dressings, the character architecturally being domestic Gothic. The lighting will be by oil lamps temporarily, and afterwards by electricity. The lighting and ventilation of the building is on the latest principle. The tenders, amounting to £5990, accepted, are as follows:—Mason and brickwork, Messrs. J. and C. D. Potter; joiner, J. Smith; glazier, plasterer, Fleming; slater, Messrs. Dauber and Son, Limited; plumber, glazier, smith and founder, B. Dennison; hot water engineer and painter, Messrs. Snowden and Son; disinfectant and laundry engineer, Manchester Laundry Engineering Company.

BRISTOL.—For several months past preparations have been in progress at the Bristol Electrical station for the supply of the power that will shortly be needed to feed the extended mains. The capacity of the engine room has been more than doubled, and the number of Lancashire boilers has been increased from seven to twelve. In the course of a few months there will be machinery of between 4000 and 5000 horse power in the engine room, and in the extension of the building recently carried out by Mr. C. A. Hayes, from the designs of Mr. Henry Williams, room has been provided for further additions to the plant when they become necessary.

DEVONPORT.—Structural and other alterations have been carried out at the Metropole Theatre, Devonport. The principal improvement is the formation of a grand circle with seating accommodation for 350. This has been done by bringing forward the gallery 20ft., in horse-shoe shape, with a frontal of fibrous plaster, artistically decorated. The other alterations include the provision of a much-needed ladies' cloak-room, and a rearrangement of the accommodation at the back of the pit, to improve the view of the stage. The ceiling has been treated to represent the four seasons of the year, the central panel being an artistic study illustrative of a rehearsal. It is proposed to erect a balcony in Catherine Street, and otherwise to improve the appearance of the arcade, which will be lighted by clusters of electric globes.

EDZELL.—The formal opening of the Inglis Memorial Hall, Edzell, took place a few days ago. The hall is a fine architectural group with graceful proportions and harmonious lines. Granite shafts and Venetian enamel mosaic have been utilised with effect on the porch. Over this rises the clock tower. The style used is Scottish of the sixteenth century. The works have been executed by the following contractors: Messrs. J. Ford and Son, Montrose, mason work; Messrs. W. Black and Son, Brechin, joiner work and library fittings and furnishings; Mr. J. Scott, Brechin, slater work; Mr. D. McKay, Carnoustie, plumber work; Messrs. Thomson Brothers, Brechin and Edzell, plaster work; Messrs. McKenzie and Moncur, Edinburgh, heating; Messrs. Milne, Edinburgh, gas fittings; Messrs. Alexander, brass founders, Dundee, hall pendants; Messrs. Wooliscroft, Hanley, wall and floor tiles; Messrs. Salvati, Venice, Messrs. Meikle, Glasgow, and Mr. Fox Maule Boyd, Dundee, have respectively carried out the Venetian enamel mosaics, stained glass and painter work to special designs by Mr. C. Ower. The architects were Messrs. Ower.

GLOUCESTER.—In a limited competition, the designs of Mr. Alfred J. Dunn, A.R.I.B.A., of Gloucester and Birmingham, have been selected by the professional assessor for new schools to accommodate 950 children, for the City of Gloucester School Board. The following report was made by Messrs. Martin and Chamberlain, the appointed referees:—"In accordance with your request, we now have the pleasure of sending you a copy of the notes made by our Mr. William Martin and his son, Mr. F. Martin, upon the inspection of nine designs sent by six competitors for schools to be erected on the Sandpits site, and of the particulars accompanying the same, and are of opinion that the design marked 'Complete Supervision' is the best, and that designs marked 'Sinister Lux' and 'Up-to-date' No. 1 are equal second. At the same time, we would suggest that the attention of the author of the selected design be called to the points named in our report upon his design for his re-consideration, and we assume that our remarks upon the other designs will be for the consideration of the committee only, and not to be made public."

LEEDS.—The newly-erected mission Church of St. Andrew, Stourton, Leeds, was consecrated a few days ago. The new church is designed in the Decorated style of English Gothic Architecture, and consists of a nave of five bays, aisles, and chancel, with a chapel on its north side, and organ chamber and vestry to the south. The church is built of brick—the walls plastered inside—with external dressings of red Dumfries stone and Harehills stone internally. Both nave and chancel have a somewhat lofty clerestory, that of the nave carrying an open framed roof, 51ft. to the apex, while the chancel roof is panelled to a curve. The chancel end is lofty and wide, so that the full sound of the organ can be heard well in the nave. The organ chamber itself is raised about 10ft. above the choir level, so that the organist has full command of his choir. The chancel is well raised above the nave, and seated in oak for a fairly large choir. The altar stands partly in a recess formed by the jambs of the great east window being brought down to the ground. The chancel still lacks its screen and other permanent furniture, while in the nave the pulpit and font are both temporary, having been used in the old iron church. Mr. W. T. Gould, of Leeds, has been the sole contractor. Mr. T. A. Bolton has been the clerk of works, and Mr. C. Hodgson Fowler, F.S.A., of Durham, the architect.

LLANDRINDOD.—The Gwalia Hotel has been extended by the addition of a separate block of buildings. The new Gwalia has been designed in the English Renaissance style of Architecture. It occupies one of the most prominent sites in Llandrindod, the principal façade fronting what has appropriately been termed the Gwalia Square, the other elevations facing the park and Ithon Road respectively.

At the intersection of the frontages octagonal turrets are placed, these being carried up to the main roof, and surmounted with an ornamental covering. The decoration and ornament have been centred on the main façade, where some very excellently carved panels and shields provide a pleasing effect. Red Ruabon bricks have been used throughout the building, with Bath stone dressings. The internal arrangement of the various floors are admitted to be not only unique, but excellent in every respect. The corridors throughout the building are well lighted and ventilated. The rooms are well arranged, ample in dimensions, and readily accessible. The chief feature, internally, is a spacious central hall, luxuriously furnished, and rendered attractive by stained glass windows, mosaic floor, artistically draped arches, the grand staircase with handsome walnut newel surmounted by a wrought-iron electric light standard, and the balconies with their fairy pendant hangings on the first and second floors, overlooking the central hall. The contract has been carried out by Mr. D. Jenkins, of Swansea. The new hotel was designed and carried out under the supervision of Messrs. Swash and Bain, architects, Newport (Mon.). The total cost of the building, including land, &c., has been £15,000.

LONDON, N.—A new police-court for the Highgate district, which has been built at the corner of Archway and Bishop's Road, quite close to the Highgate Railway Station, was formally opened last Tuesday week. The new building which has been erected by the Middlesex County Council, at a cost of about £6000, occupies a site opposite to the Gravel Pit Wood, which cost £5000, half of which will be refunded to the county by the Commissioner of Metropolitan Police, as half the ground is to be occupied by a new police-station. The building, the foundation stone of which was laid on August 5th, last year, is of red brick, with stone dressing.

NEATH.—The foundation stone of the Gnoll Park Road Board Schools has been laid within the last few days. These are the first schools that have been erected by the Board, and will have accommodation for nearly 1000 children. The work is being carried out by Mr. David Jenkins, builder, Swansea, at a cost of £10,700, from competitive plans supplied by Mr. J. Cook Rees, architect, of Neath.

PLYMOUTH.—All Saints Church, Tor, Plymouth, which has been closed for nearly three weeks, is now opened. Various alterations have been effected. Two new stained glass windows which have been put in the apse add very greatly to the general effect of the chancel. One window represents the Apostles St. James and St. John, with typical scenes from their lives; the other shows St. James-the-Less and St. Matthias in similar manner. A new pulpit of green Chilwork stone has been erected in the place of the temporary structure.

SHEFFIELD.—During the last few weeks extensive structural alterations have been in progress at the Sheffield Theatre Royal, Mr. Frank Matcham having supervised the work. A handsome verandah has been erected, covering the whole of the frontage and the gallery entrance at the side; whilst the walls have been cemented with rusticated work, bold mouldings, and ornamentations. New lobbies and vestibules have been provided, with mosaic flooring and ornamental ceilings, the walls being panelled with mouldings and enrichments, and ornamented with artistic figures, paintings, and tapestries. The staircase to the dress circle has been widened, and the wall and ceilings ornamented in harmony with the grand vestibule. The staircase opens into a large foyer, which leads to the dress circle, and adjoining is a lounge, which opens on to the saloon. A great improvement has been effected in the seating and accommodation of the stalls, and for this purpose a wide staircase has been erected. At the auditorium side an improved exit has been formed into the side street. The theatre has been redecorated throughout from the designs of the architect.

Under Discussion.

ARCHITECTURAL VISIT TO PLYMOUTH.

A large gathering of members of the Plymouth Architectural Society recently assembled at the Palace Theatre, which is now rapidly approaching completion in Union Street. The party were met at the entrance by Messrs. J. T. Wimperis and Arber's representative, Mr. Sprague, who conducted them over the works and explained the general arrangements of construction, of seating, and the decorations. After the auditorium had been inspected the party viewed the stage, and here all the mechanism was closely examined, together with some of the scenery, which was hoisted for the inspection of the members. The upper regions of the stage and the "gridiron" occupied attention en route. On the conclusion of the visit Messrs. J. T. Wimperis and Arber, the architects for the building, and Mr. Sprague, their representative, were heartily thanked on the proposition of Mr. E. A. Lethbridge, seconded by the hon. secretary, Mr. B. Priestley Shires.

ROYAL ARCHÆOLOGICAL INSTITUTE.

The members of the Royal Archæological Institute paid a visit to Lancaster last week. Among the excursions taken was one to Heysham. The church, dedicated to St. Peter, the party found to be of Norman architecture, with remains of Saxon work. In the churchyard several ancient tombstones were pointed out, on one of which is a carved cross with a sword on one side and a harp on the other, conjectured to have been the memorial of a minstrel warrior. An object of archæological interest is found on the right hand side of the path, this being a stone known as the Heysham Hogback, which is most curiously carved. On the headland to the west of the church were seen the ruins of the oratory of the little Saxon church which was dedicated to St. Patrick, and which measured 27ft. by 9ft. The parts remaining are the east wall and parts of the north and south walls. To the west of this church six coffins hewn in the rock were pointed out, and these were seen to have sockets at the head for crosses which have disappeared. On the opposite side of the hill are two similar coffins, one a small one, apparently that of a child. This is taken by some antiquaries to refute the proposition that the place was ever the cell of an anchorite or missionary hermit, whilst others deny that it does, as many of them were married men. The generally accepted tradition is that it is an early British church founded by St. Patrick, who landed on the shores of Morecambe Bay from Ireland.

A VISIT TO YORK.

The members of the Northern Architectural Society, which is one of the largest of the provincial centres in alliance with the Royal Institute of British Architects, recently paid a visit to York. The party was conducted by Mr. John Robson, Newcastle-on-Tyne, and Mr. Arthur Pollard, York, over the new north wing recently added to the Station Hotel by Mr. William Bell, the company's architect. One of the chief features of this additional block of buildings is the magnificent reading and writing room, which will supply a long-felt want as a source of comfort and convenience to visitors. This work has been carried out entirely by Mr. Robson, being finished throughout in oak. The furnishings and appointments are luxurious, and every modern contrivance in the way of electric lighting and efficient ventilation has been studied. The party visited the following places of interest under the guidance of the president and hon. secretary of the York Society, viz., All Saints, North Street, the Guildhall, St. Leonard's Hospital, St. Mary's Abbey, and the Yorkshire Philosophical Society's Museum, the King's Manor House, King William's College, Stonegate, the Shambles, and the Merchants' Hall, Fossgate. A dinner was afterwards held at the Station Hotel.

SHAKESPEARE'S CHURCH.

THE WORK OF RESTORATION.

WE have already summarised in occasional paragraphs the work of restoration as it has proceeded at the Collegiate Church of the Holy Trinity, Stratford-on-Avon. Now that another stage in the work has been reached, ampler details may be of interest. Unfortunately, what was proposed to be carried out when the work was first commenced has not been realised. After spending about £6000 upon the building some few years ago, operations were suspended for a time to allow of the liquidation of some £200 or £300 of the debt which remained, but in the autumn of last year, the liability having in the meanwhile been cleared off, public attention was once more directed to the desirability of completing

THE WORK IN THE NAVE,

and of restoring and beautifying the church in other respects. Under the advice of Mr. G. F. Bodley, A.R.A., whose name the committee felt would inspire confidence in all who regarded "Shakespeare's Church" in a certain sense as the property of the nation, a scheme was formulated for continuing and, it was hoped, finally completing the work. It was proposed to relay the floor of the nave and transepts, scrape the walls and columns under the tower, and substitute oak open benches for the uncomfortable pews put in about fifty years ago, when upwards of £10,000 was spent upon the church; also to introduce new heating apparatus and reconstruct the organ, which, as an electric instrument, had proved a failure. The scheme also comprised the rebuilding, on a revised plan, of

THE OLD VESTRY,

taken down about one hundred years ago on account of its dilapidated condition. For the whole of this work (including a proposed installation of the electric light) it was computed that £5000 would be required, and although little doubt was felt at the time as to the raising of the money, yet it was thought advisable to proceed cautiously and give preference to the more pressing portion of the work. This included the relaying of the floors, which, owing to the large number of burials inside the church, were in a very insanitary condition. Interments have taken place continuously for upwards of 800 years until within a comparatively recent period, and the earth under the floors—especially in the south transept—was positively wet. In addition, there were a large number of vaults inside the building which were a menace to health. The ground had been excavated to a considerable depth, the vaults filled in, and a good foundation of rubble and concrete put down. Upon this have been laid oak blocks for the pews, and the gangways and centre aisle have been paved with stone, in which have been inserted

ALL THE ANCIENT MONUMENTAL SLABS discovered buried beneath the modern floor. During the excavations a large quantity of human remains were found, together with a

few relics, moulded stones, &c., belonging to the original monastic church, which occupied the site before the Norman Conquest. In making an opening at the head of the south aisle into the transept an interesting relic was brought to light, consisting of an Early English lancet window, which had been blocked up nearly 600 years. The mouldings were a good deal mutilated, and for this reason Mr. Bodley could not advise that the window should be retained. The relaying of the floor has been carried out by Messrs. G. F. Smith and Sons, Milverton, at a cost of about £1300. An improved apparatus for heating the church by means of hot air has been introduced by Mr. J. Grundy, of London, costing nearly £400, and Messrs. W. Hill and Sons have reconstructed the organ, upon which, including the case, nearly £2000 was expended a few years ago. The electric system then introduced has been discarded, and the builders' tubular pneumatic action substituted. The arrangement of the instrument is remarkable and unusual, owing to the difficulty of disposing of it without obscuring any essential feature of the church. The swell organ is placed in the beautiful loft or gallery over the tower arch facing the nave; the great and pedal organs stand behind the carved oak screen at the east end of the south aisle; the choir organ projects into the south transept; while the blowing feeders and engines occupy a convenient site below the great window of the south transept, and are disposed of behind a suitable oak screen. The console for the player stands behind the choir seats in the nave, and though the length of action to the swell is great the utmost rapidity of touch is maintained, and the entire mechanism is of a very scientific and beautiful kind, being instantaneous, light, and noiseless. It is considered one of the finest church organs in the kingdom.

NEW CLERGY AND CHOIR STALLS,

designed by Mr. Bodley, have been promised by the vicar, but these will probably not be fixed before the autumn. In the meantime a temporary structure has been set up. The aisles have been seated with handsome oak benches, with suitably carved ends, and it is hoped eventually to fill the nave with the same kind of seating; at the present time the nave and transepts are provided with chairs. A substitute for a pulpit is a plain wooden structure, which has been in use since the stone pulpit was discarded by the vicar some years ago. The gift of a new pulpit in keeping with the Architecture of the building is much desired, and it is hoped will soon be supplied, as the present erection is both shabby and insignificant. Excluding gifts, the work carried out during the past six months and that sanctioned has cost over £3000, and some £2000 more is needed to complete the scheme, including a new vestry and other work; but as the committee are already considerably in debt, the remaining portion has been postponed.

It is proposed to build a free library at Chorley. The architects are Messrs. Jolly, Buckley, and Dinsley, of Chorley.

Correspondence.

CARSHALTON COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In answer to Messrs. Newman and Newman's letter in your issue of July 20, permit me to express my regret for having mistaken their connecting roads and paths for covered ways. My criticism on the disposition of their buildings will, however, still hold good. My remarks on the size of two of the block plans were owing to the fact that eight out of the ten competitors restricted their strainers to one uniform size. Messrs. Newman and Newman's explanation does not elucidate this point, for permission to show only a part of the site seems rather to imply that the uniform size of strainers was intended to be maintained. Such was evidently the interpretation that eight of the competitors gave to the Board's instruction.—Yours faithfully,

THE WRITER OF THE ARTICLE.

Enquiry Department.

"ARCHITECTURAL PERSPECTIVE."

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I am about to take up architectural perspective. Would you kindly, in your next issue, give me name of best book on ordinary every-day architectural perspective? and oblige, yours truly,

"IMPROVER."

The best work for students is "Linear Perspective," by G. A. T. Middleton, A.R.I.B.A., published by B. T. Batsford, 94, High Holborn, W.C., at 1s. A rather more advanced work is "Architectural Perspective," by F. O. Ferguson, 3s., same publisher. "Linear Perspective" is, of course, the method usually employed by architects.

Trade and Craft.

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The Threlkeld Granite Co. Ltd., of Keswick (Cumberland), have been awarded a silver medal at the Royal Lancashire Agricultural Show held at Blackburn, and have received similar recognition at the Wirral and Cheshire Show held at Birkenhead, for the excellence of their manufactures in ornamental granitic tiles and granite concrete flags, &c.

WHILST making some excavations at the Rock House Hotel, Barton, near Manchester, which is being rebuilt, the workmen have found a skeleton in a stone aperture underneath the floor in the old kitchen. A gold ring was found in the grave.

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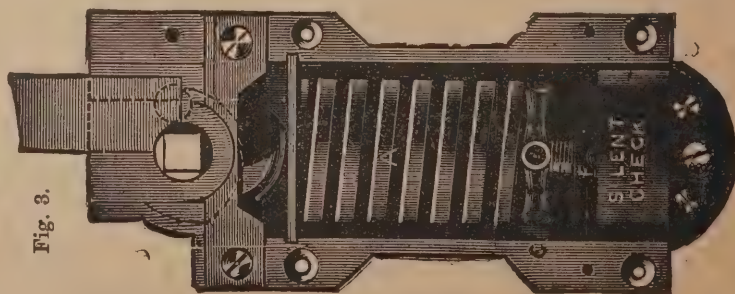
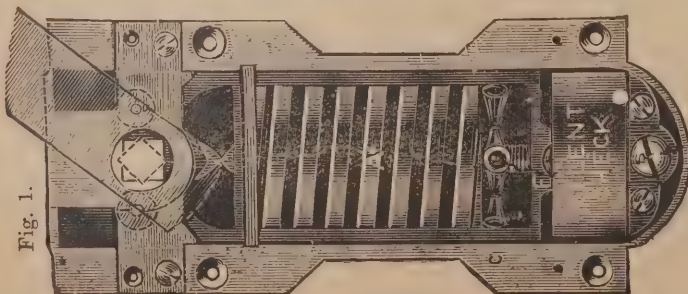
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EXTENSIVE rebuilding and enlargement works of the premises of the Dental Hospital in Leicester Square are now in progress.

A NEW hospital for soldiers' wives and children has been opened at Aldershot. The hospital, which is a yellow brick building, is named the "Louise Margaret" Hospital, after the Duchess of Connaught.

ALTHOUGH buildings occupied exclusively by societies for the purposes of Art and Science are wholly exempt from assessment, the Treasury proposes to pay rates and taxes upon the Tate Gallery at Millbank, provided the parish of Westminster is prepared to approve of the valuations made by the Treasury valuer, which is £12,300 a year.

THE memorial to the late Duchess of Teck, at St. John's Church, Kingston Vale, which was dedicated on Saturday, is in the form of a beautifully-carved reredos in white alabaster from the designs of Mr. C. F. Bodley, A.R.A., and four stained-glass windows, with the figures of the patron saints, St. George, St. Andrew, St. David, and St. Patrick.

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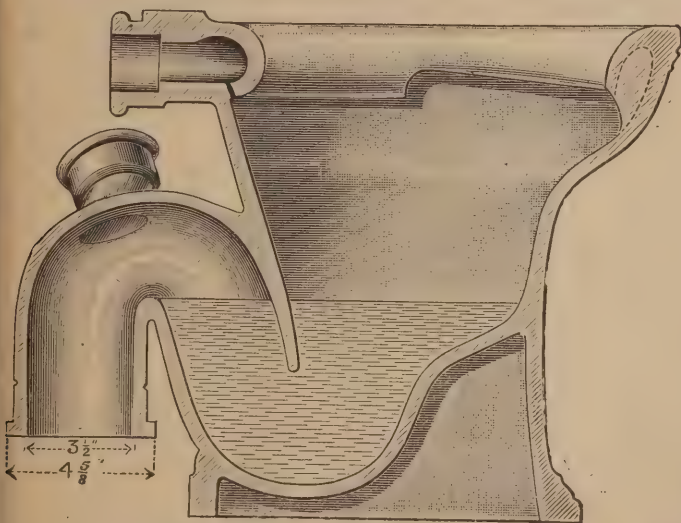
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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABBEY WOOD.—For iron building, for Mr. C. H. Gray:—
W. Harbrow, South Bermondsey ... £188
ALYTH.—For improvement of farmstead, Mains of Creuchies, near Alyth, for Sir James H. Ramsay, Bart., of Banff, Messrs. L. and J. Falconer, architects, Blairgowrie:—

Masonry.
James McLeish ... £246 13 | Stewart Clark, Alyth* £140 0
Lewis McDonald ... 148 0

Joinery.
Thomas Doig ... £100 11 | Alexander Oastler ... £80 15
Thomas C. Mitchell ... 98 6 | Alex. Sim, Rattray* ... 80 10

Plumbing.
Thomas Ferguson ... £34 10 | Robert Kidd, Blairgowrie ... £27 0
William Templeman ... 30 7 | gowrie* ... 27 0

Slatting.
Robert Craigie ... £46 2 0 | John Walker ... £35 15 0
Charles Crichton ... 39 15 4 | Geo. Crichton, Alyth 25 10 0

Plastering.
William Sidey ... £11 2 0 | Alex. Mitchell, Alyth £10 13 6
*Accepted.

BURN-OF-KILRY (N.B.).—Accepted for the erection of farmhouse, &c., Coldside Estate. Mr. R. Reid, architect, Blairgowrie:—

Masonry.—James Paterson, Dalvanie, Glenisla ... £256 7 6
Joinery.—Thomas Doig, Rattray, Blairgowrie ... 219 17 6

Slatting.—Geo. Crichton, Alyth ... 50 0 0
Plumbing.—Geo. Kidd, Blairgowrie ... 42 17 0
Plastering.—Joseph Bell, Blairgowrie ... 33 0 0

BELAUGH.—For the erection of a house and stable at Belaugh, Norfolk. Mr. T. Inglis Goldie, architect, High-bury House, Theatre-street, Norwich:—

Downing & Son ... £1,230 0 0 | John Hurn ... £1,012 10 0
Daws and Son ... 1,089 0 0 | James Evans ... 975 1 0
S. R. Wilkins ... 1,047 0 0 | J. W. Neale* ... 973 11 6

*Accepted.
CAEDRAW (South Wales).—For iron schoolroom, for Merthyr Tydvil School Board:—

W. Harbrow, South Bermondsey ... £148
CARRADALE (Argyll, N.B.).—For iron shooting-box, for Mr. Kenneth Mackenzie:—

W. Harbrow, South Bermondsey ... £369
CHIPPING SODBURY.—For additions to sewage disposal works, Wickwar. Mr. J. F. Trew, engineer, County-chambers, Gloucester:—

Webb ... £465 19 | Scull ... £400 0
Payne ... 461 1 | Hudson, Yate* ... 395 4

*Accepted.
CROMER.—For the erection of residence at Cromer, Norfolk. Mr. R. W. W. Carter, architect, Cromer:—

J. Jillings* ... £287 5 | H. Bullen ... £813 0
Girling and Smith ... 820 0 | Harrison and Blythe 810 0
J. Riches ... 819 5 | *Accepted.

HUDDERSFIELD.—For the erection of isolation block at Sanatorium, Mill Hill, for the Corporation. Messrs. E. Thomas and Sons, architects, 7, Queen Anne's-gate, Westminster, S.W.:—

Masonry.—A. Schofield ... £1,643 15
Founder and Smith.—J. Bagshaw and Sons ... 106 0
Glazing.—Crossley and Bould ... 69 19

Plastering.—W. E. Jowitt ... 316 0
Slatting.—A. Jackson ... 63 0
Painting.—T. Longbottom and Co. ... 184 0

Plumbing.—J. Marsden ... 179 0
Carpentry and Joinery.—J. Sykes ... 679 0

£8,240 14
[All of Huddersfield.]

DONCASTER.—For new iron chapel, schoolroom, and offices, for Messrs. Athron and Beck, architects, Doncaster:—

W. Harbrow, South Bermondsey ... £421
DORCHESTER.—For the erection of new almshouses, for the Trustees of Chubb's and Whetstone's Charities. Mr. A. L. T. Tilley, architect, Dorchester:—

E. Smith ... £1,185 | A. Harvey, Charminster, Dorchester* ... £1,141
C. E. Slade ... 1,180 | *Accepted.
W. Fry ... 1,160

LEICESTER.—For the erection and completion of the new isolation hospital for the borough of Leicester, consisting of administrative block, five fever pavilions, two isolation blocks, discharging blocks, laundry, mortuary, porter's lodge, &c., for the Corporation. Messrs. Blackwell and Thomson, architects, Halford-chambers, Halford-street, Leicester:—

E. Fox ... £57,639 | Clark and Garrett ... £50,006
H. Herbert and Sons 54,851 | Merredew and Wort 49,350
Hardington & Elliott 52,753 | J. E. Johnson & Son ... 51,338
Thos. Herbert ... 51,338 | Leicester (accepted) 48,381
W. M. Sharp ... 50,645

LEATHERINGSETT (Norfolk).—For the erection of a new Free Methodist Chapel. Mr. R. W. W. Carter, architect, Cromer:—

Blyth and Sons ... £143 0 0 | W. Fowler ... £175 12 0
J. E. Woods ... 169 10 6 | G. Hewitt ... 200 10 0

*Accepted.
LONDON.—For repairs at the "King Charles II." Spital-fields Market, for Mr. Wm. Hubbard, Mr. Edward Brown, architect, 161, Commercial-street, Bishopsgate:—

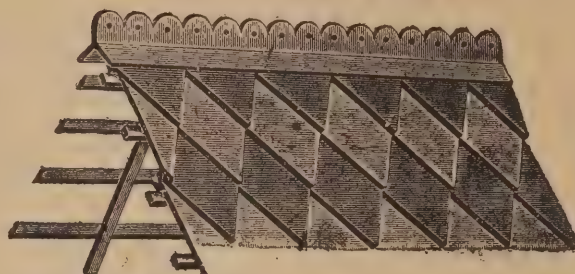
F. Granfield ... £257 | J. V. Kiddle and Son* ... £230
*Accepted.

LONDON.—For iron shedding, Brixton, for Mr. E. C. Roberts:—

W. Harbrow, South Bermondsey ... £114
LONDON.—For iron roof, Willesden, for Mr. F. A. Peel, architect:—

W. Harbrow, South Bermondsey ... £157

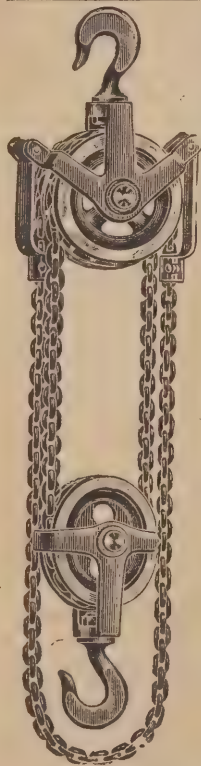
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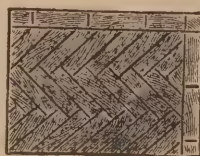
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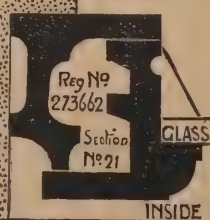
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LONDON.—For repairs to the chimney-shaft at the work-house, Arthur-street, Chelsea, for the Guardians of St. Luke, Chelsea. Messrs. Lansdell and Harrison, architects, 38, Bow-lane, Cheapside, E.C. :—
J. Leggatt and Sons £175 10 | W. F. Picken, Chelsea G. Wade ... 135 0 | sea (accepted) ... 675 0

LONDON.—For the rebuilding of Nos. 293-299, Kentish Town-road, N.W., for Mr. Herbert Beddall. Mr. Walter Bunting, architect, 7, John-street, Adelphi, W.C. Quantities by Mr. C. Orlando Law, surveyor, Dacre House, Arundel-street, Strand, W.C. :—
R. Bristow and Sons £11,600 | Lawrence and Sons £10,380
J. Allen and Sons ... 10,833 | Gould and Brand ... 10,420
Patman & Fotheringham £10,793 | A. A. Webber ... 9,250
J. Carmichael ... 10,695

LONDON.—For pointing and repairs to the brickwork and painting to the exterior of the infirmary, Cale-street, Chelsea, for the Guardians of St. Luke's, Chelsea. Messrs. Lansdell and Harrison, architects, 38, Bow-lane, Cheapside, E.C. :—
F. H. Harris ... £2,190 | G. Wade, Chelsea* ... £2,098
*Accepted.

LONDON.—For the erection and completion of a nurses' home at the infirmary, St. John's Hill, Wandsworth, for the Guardians of the Wandsworth and Clapham Union. Messrs. Lansdell and Harrison, architects, 38, Bow-lane, Cheapside, E.C. :—
General Builders, Ltd £14,000 | T. Gregory and Co., G. Munday and Son ... 12,210 | Clapham Junction* £11,649
H. Johnson and Co. ... 11,943 | W. Norton ... 11,250
H. Roffey ... 11,895 | *Accepted.

LONDON.—For sewerage, levelling, and ballasting new roads on the Fortis Green Estate, Hornsey. Mr. G. H. Paine, architect and surveyor, Stoke Newington-road, Kingsland, N. :—
R. Jackson ... £2,888 | T. Adams ... £2,404
C. W. Killingback and Co. ... 2,709 | W. Wade ... 2,393
J. A. Dunmore ... 2,544 | R. Ballard, Limited* ... 1,897
*Recommended for acceptance.

LONDON.—For additions to chapel, Clapham, for Mr. T. James :—

W. Harbrow, South Bermondsey ... £177
LONDON.—For pulling down and rebuilding the "Waterman's Arms" public-house, 92, High-street, Wapping, E., for Mr. John Prior. Mr. Joseph G. Needham, architect, 18, Lower Clapton-road, N.E. :—
Inkpen ... £2,995 | A. Hood, Cambridge-J. W. Maddison ... 2,345 | rd.* (amended tender) £2,167
F. H. Jackson ... 2,282 | *Accepted.

Pewterer.—G. Rogers, Commercial-rd. (accepted) £89
Gas Engineer.—Steadman, Bethnal Green road (accepted) ... 128

LONDON.—For additions to the gentlemen's lavatory on the ground floor at the Holborn Town Hall, Gray's Inn-road, W.C. Mr. Lewis H. Isaacs, architect, 3, Verulam-buildings, Gray's Inn. Quantities by Mr. J. F. Bull, surveyor, 30, Bedford-row, W.C. :—
Dixon and Jones ... £275 | R. E. Worsley ... £498
R. Bristow and Sons ... 328 | Woodrow ... 494
T. Sobey ... 516 | J. Hunt and Sons* ... 489
*Accepted.

LONDON.—For iron chapel, Manor Park, E., for Rev. C. Pummell :—

W. Harbrow, South Bermondsey ... £444 14
LONDON.—For alterations to the "Blue Anchor" public-house, Mile End-road, for Mr. E. White. Mr. Joseph G. Needham, architect, 18, Lower Clapton-road, N.E. :—
A. Hood ... £184 | J. W. Maddison ... £456

MELTON MOWBRAY.—For iron bungalow, for Mr. E. Shelbourne, architect :—

W. Harbrow, South Bermondsey ... £149 15

MITCHAM.—For iron building, for Mr. C. Blume :—

W. Harbrow, South Bermondsey ... £292

NEW BARNET.—For iron church, for Mr. E. Penman :—

W. Harbrow, South Bermondsey ... £329 10

OXFORD.—For removing and re-erecting golf pavilion, for Mr. W. R. Townshend :—

W. Harbrow, South Bermondsey ... £103 15

SALISBURY.—For additions to infirmary, for the Committee of the Infirmary. Messrs. J. Harding and Son architects, 58, High-street, Salisbury. Quantities by architects :—

G. Jackson ... £7,962 | Wort and Way ... £5,995
Vincent and Pollard ... 7,200 | F. Hale ... 5,900
H. W. Bull ... 7,057 | Webb and Co., Salis-
T. Dawkins ... 6,626 | bury (accepted) ... 5,868

SHEPTON MALLET (Somerset).—For the erection of school and residence, for the Governors of the Grammar School. Mr. W. J. Willcox, architect, 1, Belmont, Bath :—
H. J. Stead ... £2,752 | F. Bray ... £2,380
H. Gibson ... 2,735 | J. Bird ... 2,350
W. Webb ... 2,575 | Sales Cook ... 2,330
Hayward and Wooster ... 2,567 | F. Huish ... 2,320
Long and Sons ... 2,493 | J. Dodimead, Shepton
C. Wibley ... 2,487 | Mallet* ... 2,285
Francis and Son ... 2,470 | *Accepted.

[Architect's estimate, £2,300.]

WALTHAMSTOW.—For new sewers and roads on the Rowden Park Estate, Walthamstow. Mr. T. Wilson, surveyor, 34, New Bridge-street, E.C. :—

Piell and Son ... £7,542 | Neave and Co. ... £6,427
Wimpey and Co. ... 7,431 | Rogers and Co. ... 6,372
French ... 7,344 | Killingback ... 6,224
Jackson and Co. Ltd. ... 7,321 | Ballard and Co. Ltd ... 6,125
Novel and Co. ... 6,842 | Eli Wilson (accepted) ... 5,975
Jesse Jackson ... 6,734

WALTON-ON-NAZE.—For sewerage, paving, &c., Station-road, for the Urban District Council. Mr. H. W. Gladwell, surveyor, High-street, Walton-on-the-Naze. Quantities by surveyor :—

Cottell and Co. ... £1,111 | Mackenzie ... £850
Moran and Son ... 890 | Glenny, Colchester* ... 650

[Surveyor's estimate, £800.]

*Recommended for acceptance.

WOODFORD.—For alterations to two houses, High street, for Mr. John Appleby. Mr. Edward Brown, architect, 161, Commercial-street, Bishopsgate :—

M. Bryden ... £420 | H. Wells and Son ... £305

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CONTRACTS OPEN.**CLACTON COTTAGE HOSPITAL.
DIAMOND JUBILEE MEMORIAL.
TO BUILDERS AND CONTRACTORS.**

The Committee invite TENDERS for the ERECTION and COMPLETION of a COTTAGE HOSPITAL at Clacton-on-Sea. Plans and specifications, with bills of quantities, may be obtained of the Architect, Mr. J. W. MARTIN, Station-chambers, Clacton-on-Sea, and No. 17, Coleman-street, E.C., for which a deposit of £1 1s. will be required, to be returned on receipt of a bonâ-fide Tender.

Sealed Tenders, endorsed "Tender for Cottage Hospital," are to be sent to the undersigned not later than TWELVE o'clock noon on SATURDAY, AUGUST 6th, 1898.

The Committee do not bind themselves to accept the lowest or any Tender.

A. R. CHAMBERLAYNE,
"Southwood," Hon. Sec.
Carnarvon-road, Clacton-on-Sea,
July 20th, 1898.

PARISH OF NOTTINGHAM.**TO BUILDERS AND CONTRACTORS.**

The Guardians of the Poor of the Parish of Nottingham are prepared to receive TENDERS for the ERECTION of the SUPERSTRUCTURE of the new WORKHOUSE, INFIRMARY, and appurtenant Buildings, for 1600 inmates and staff at Bagthorpe, in the City of Nottingham.

Instructions for Tender, and forms of Tender and bills of quantities can be obtained from Mr. ARTHUR MARSHALL, A.R.I.B.A., of King-street, Nottingham, on payment of £21 to me, the undersigned, for each copy, after which the drawings and specification can be inspected at the Architect's office during the usual hours of business.

The amounts deposited will be returned on receipt of bonâ-fide Tenders.

Tenders and accompanying documents, completed in accordance with the instructions attached to the form of Tender, must be delivered in a sealed envelope,

endorsed "Tender for new Workhouse," not later than TWELVE o'clock on SATURDAY, AUGUST 6th next, at my office in Shakespeare-street, in the City of Nottingham, after which hour no Tender will be received.

Any Tender not made in the prescribed manner, or not completed in every particular, in accordance with the instructions, will be rejected.

The person whose Tender is accepted will be required to enter a bond with two approved sureties for the performance of the contract.

The Guardians do not bind themselves to accept the lowest or any Tender.

By order of the Guardians,
G. MUNCASTER HOWARD,
Poor Law Offices, Clerk to the Board.
Nottingham.
June 30th, 1898.

**BOROUGH OF SHOREDITCH.
NEW BATTERY ROOM, BOILER HOUSE,
AND EXTENSION OF OFFICES.
CONTRACT No. 18.**

The Shoreditch Vestry invite TENDERS for the ERECTION of a new BATTERY ROOM, BOILER HOUSE, and EXTENSION OF OFFICES at the Electricity Supply Station, Coronet-street, Shoreditch.

Specifications, quantities, and forms of Tender can be obtained, and the drawings can be seen at the Offices of the Engineers, Messrs. KINCAID, WALLER, and MANVILLE, 29, Great George-street, Westminster, on payment of a fee of Three Guineas, which sum will be returned on receipt of a bonâ-fide Tender.

The Vestry do not bind themselves to accept the lowest or any Tender, and the contractor whose Tender is accepted shall enter into a formal agreement under seal with sufficient sureties for the due fulfilment of his contract.

Trade Union rates of wages and hours to be observed. Sealed Tenders, endorsed "Electricity Supply, Tender for Battery Room, Boiler House, and Extension of Offices," to be sent at or before NOON on MONDAY, AUGUST 15th, 1898, to

H. MANSFIELD ROBINSON,
Town Hall, Vestry Clerk and Solicitor.
Old-street, E.C.

**SWANSEA U.D. SCHOOL BOARD.
TO BUILDERS.**

The School Board of the United School District of Swansea invites TENDERS for the ERECTION of the Manselton School, Swansea.

The plans may be inspected at the School Board Offices, Dynevor-place, Swansea.

Applications for specifications and bills of quantities to be made to the undersigned, or to the Architect, Mr. G. E. T. LAURENCE, A.R.I.B.A., 181, Queen Victoria-street, London, E.C., accompanied by Three Guineas, which will be returned on receipt of a bonâ-fide Tender.

All Tenders must reach the Clerk on or before MONDAY, SEPTEMBER 19th next, in a sealed envelope, marked outside "Tender for Manselton Board School," and must be accompanied by a schedule of prices, and by the names and addresses of two sureties for the completion of the work, in case the Tender is accepted.

The Board does not bind itself to accept the lowest or any Tender.

A. W. HALDEN,
Board Offices, Swansea, Clerk.
July, 1898.

COMPETITION.**BOROUGH OF PLYMOUTH.
STREET IMPROVEMENTS.****WIDENING OF TAVISTOCK-ROAD.**

The Special Works Committee of the Plymouth Town Council is prepared to receive from Architects DESIGNS for the ERECTION of SHOPS and DWELLING-HOUSES fronting Tavistock-road.

The Committee offer a Premium of £250 for the Design selected as the best, and the Premium will be awarded by a professional assessor.

The Designs are to be delivered at the offices of the undersigned not later than SEPTEMBER 24th next.

Instructions for competing Architects, plans of proposed building sites, and all further particulars can be obtained on application to

J. H. ELLIS, Town Clerk.
Town Clerk's Office, Plymouth,
July 20th, 1898.

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GAS-WORKS MACHINERY.*

BY EDWARD ALFRED HARMAN, C.E.,
Gas Engineer to the Huddersfield Corporation.

INTRODUCTION—continued.

HERE, again, is a common fallacy, namely, that it is the lightness of the gas which raises the gasholders, after the manner of a balloon—holders constructed of huge framework! In a gasholder of 200ft. diameter, having 5in. water pressure, the weight of iron represented equals nearly 600 tons. It is necessary that the capacity of the hydraulic main should be of sufficient size to allow of all the pipes therein remaining sealed, in the event of the exhauster from any accidental cause ceasing work. In such a case the whole of the gasholder pressure would be at once thrown on to the hydraulic main, forcing the liquor contained therein up the dip pipes to the maximum amount of the resulting pressure. It is this maximum pressure that has to be provided for. A few years since exhausters were commonly driven by pulleys and leather belts, but now in many works they are driven direct from an engine fixed on the same bedplate. Of course, the best form of exhauster is that which runs as evenly as possible, and gives the steadiest gauge. It is apparent that any unsteadiness of the engine might produce any or all of the undesirable possibilities to be avoided. In designing the size of the exhauster it is not sufficient to take the daily maximum make of gas, and divide it by twenty-four hours and so obtain the hourly make. When the retorts are first charged the quantity of gas travelling forward is more than at any later portion of the process of carbonisation. The rapidity at which retorts are charged, both by machinery and with the inclined system, produces a sudden rush of gas, which is very heavy, and has accordingly to be provided for. The high temperature of the gas as it issues from the retorts has also to be kept under notice, on account of its larger volume at the higher temperature. Excessive speeds for the exhauster should not be adopted, as by so doing the already high temperature of the gas is increased. It seems to the author that circumferential velocity is the correct method for calculating the size of an exhauster, and a good average rate is about 800ft. per minute; that is at the tips of the so-called exhauster blades. Generally speaking, exhausters should not be constructed to pass more than between 200,000 and 300,000 cubic feet per hour. It is desirable, above that quantity, to put in another exhauster. The gas to be exhausted is unpurified, as the exhausters are generally placed at the outlet of the condensers. There is a large amount of tar, ammonia, and, indeed, all the other impurities which have to be extracted in the further processes. The tar will, generally speaking, lubricate the exhausters sufficiently, but at times it is found desirable to add thick creosote oil, or a little thin tar, for additional lubrication. Under any circumstances, it is undesirable to use cheap machine oil for this purpose. When the exhausters are used simply for the purpose of delivering pure gas at a considerable distance away from the works, which is exceptional, any good machine oil may be used; although even then it is an open question whether creosote oil is not the most advantageous for the purpose. The engines for driving the exhausters are of simple construction, but necessarily require to be of a strong character, as their duty is severe. Regarding the horse-power required for driving exhausting machinery, this varies according to the pressure and circumstances; and it is indeed very difficult to fix any approximate rule for the calculation. For many years makers of exhausters have been reproducing with few important alterations, the familiar form of machine; namely, that of the rotary type, consisting of an eccentric

barrel with a double slide. This is being very gradually improved upon. As regards the speed of exhausters, the general idea seems to be that unless they rotate with great rapidity, very perceptible oscillations are experienced in the vacuum.

GAS ENGINES.

In connection with gas-works machinery, a larger use ought to be made of gas engines. It is somewhat of an anomaly to be generating steam, necessitating powerful boilers, when there is such an ample supply of gas power always available.

PUMPS.

Pumps are required on gas-works for numerous kinds of liquids, of varying specific gravities, from light volatile spirits to almost solid matter, in the form of tar and pitch, the viscosity of which is frequently fatal to the working of ordinary pumps. Pumps frequently have also to deal with cotton waste, small pieces of coke, and finely divided matter which have got into the liquid in some mysterious manner. There are also great variations in temperature to be taken into account. Sometimes the liquids are below freezing point, and at others at a high temperature. The pumps in many places have to deal with canal water, containing every possible variety of suspended matter. In calculating the requisite pumps, the specific gravity of thick tar, pitch, &c., must be carefully allowed for, and not merely the 33ft. maximum for ordinary water pumps considered.

LUBRICANTS.

Perhaps as important a question as any in connection with gas-works machinery is that of the most desirable lubricants. In many places machines are subjected to considerable heat, the effect of which upon oils and lubricants generally varies. It is not simply a question of volatilisation or viscosity, but the question of the different residuals left from the oil has also to be considered. Much of the difficulty experienced with machinery has been due to insufficient lubrication and improper lubricants. In gas-works the coal and coke dust have to be considered, and the sulphurous and other gases attacking every portion of metal for which they have any affinity. It is absolutely necessary that every part of machinery not at work should be tallowed and greased to preserve it ready for future service. It is a common error in many works to consider that the machines only want overhauling and attention immediately preparatory to re-starting.

COAL STACKING.

Stacking coal by machinery has not yet been largely adopted in the United Kingdom. The unloading of boats by means of grabs, &c., has certainly made a distinct advance. Upon some of the London works there are magnificent installations of work of this character. In May last, at the Institution of Gas Engineers, Mr. Marshall, the engineer of the Danish Gas Company, described the new coaling apparatus he had erected at the Fredericksberg gas-works. The machinery consists of six cranes, with steel lifting grabs, each weighing 3 tons; the total dead weight with the load of coal being 5 tons. There are also automatic cars constructed to carry 2 tons, discharging the coal into bins. These six cranes easily hoist 600 tons per hour, or 100 tons per crane per hour. Assuming the cranes work a minimum quantity of 480 tons per hour, this would equal for a working day of nine hours a discharge of 4320 tons. Assuming the cranes to be at work six months in the year, or, say, 180 days, the total quantity of coal unloaded would be 777,600 tons. Mr. Marshall, however, does not anticipate, during the first few years at all events, that the annual quantity discharged would amount to more than 500,000 tons. The Temperley transporter is admirably adapted for use under certain conditions, where a system of overhead transportation is required. It was introduced some five ago, when the portable beam type of transporter was tried with such marked success by the Admiralty for coaling men-of-war during the Naval Manœuvres of 1893. Since that time, however, the Temperley transporters have not only been generally adopted

for this purpose by the British and other Governments, but they have been applied in a variety of new forms for many uses on shore, and they are especially found to offer distinct advantages over other appliances for special purposes. This is the case when a long outreach is necessary, and goods are required to be conveyed to a considerable distance from the lifting point. A special feature of the Temperley transporter is a carriage, or traveller, of simple, but ingenious design, working on an elevated truck, and provided with an automatic device by which the traveller is arrested and held stationary while the load is being lifted or lowered, and which also sustains the load while the traveller is moving. The operations of lifting, transporting, and lowering the load are effected by the simple action of hauling in and letting out a single rope. Any ordinary form of winch may be used for working the transporter. The travellers are made of numerous sizes and patterns, suitable to the work required of them. At the Midland Coal Company's wharf at Woolwich, this transporter is used for discharging the coal from steam colliers on to a coal stack, and into wagons. The plant consists of a hollow steel boom 83ft. long, suspended from a carriage which is traversed along the flanges of an overhead steel girder of 40ft. span, by means of an endless chain laid to a hand-crab. After being held in any desired position, the boom is made fast by guide-ropes, and remains stationary while the work proceeds. The automatic traveller used runs on a swinging track suspended from the boom. It is operated, as before indicated, by a single rope attached to an ordinary steam-winch placed in an adjacent building. The track is fitted throughout its length with steps 5ft. apart, at any of which the traveller can be arrested, and the load lowered and deposited without breakage, the entire operation being under the control of the man stationed at the winch. The transporter is capable of making sixty lifts per hour, and the quantity of coal usually lifted in each scoop is thirteen or fourteen hundredweight, representing a duty of about forty tons per hour. This type of transporter, which is largely used for stacking coal, &c., is made in sizes up to 100ft. in length, and to lift up to fourteen hundredweight.

COKE CONVEYORS

Coke conveying and screening by machinery are attended by many difficulties, the sharp, gritty nature of the material grinding the apparatus used. One of the best forms of coke conveyors in England which the author has seen is that designed by Mr. Henry Hack, M.Inst.C.E., of Birmingham. It is in use at the city gas-works, Swan Village, near Birmingham, and consists of a continuous bucket-chain, Hack and Piggott's patent. The coke is conveyed from the cellars of the retort house to the outside of the house, where it drops on to a conveyor placed at right angles, and is quenched. It is then carried up an inclined conveyor leading into a circular rotary drum placed at a suitable angle, composed of perforated plates having different size meshes. Underneath this screen are placed two railway wagons, into one of which the dust falls, and into the other breeze, whilst at the lower end is placed a third wagon, which receives the coke that has traversed the entire length of the screen, not having sifted through the meshes referred to. It will be seen that hand labour is not employed upon the coal from the time it leaves the pit, until it leaves the gas-works in the form of coke. On the Continent, one of the best designs the author has seen for coke quenching and conveying machinery is that by M. de Brouwer, of Bruges. It consists of a chain conveyor placed below the bottom row of retorts, the return chain of which is placed overhead in front of the ascension pipes, and is supported by brackets projecting from the buckstaves. The conveyor consists of a water trough composed of plates and angle irons, in which runs a skeleton conveyor. Light tramways, with endless rope systems, are also successfully employed for conveying coke.

(To be continued.)

* A paper read before the Society of Engineers, on June 6th, 1898.

Builders' Notes.

THE first sod of the Basingstoke and Alton light railway was cut one day last week by Mr. C. T. Ritchie, President of the Board of Trade. The line, which will be built by the South Western Company, will be the first of its kind in England to be constructed under the Light Railways Act. Its length will be about twelve miles, running through a purely agricultural district in North Hampshire, and it will connect the main line at Basingstoke with the Alton and Winchester branch. It will also eventually form a connection with the new Meon Valley line, thus making a more direct communication with Portsmouth. Messrs. Firbank are the contractors, and the actual cost of construction is expected to be about £4000 per mile.

At a special sitting of the Glasgow Dean of Guild Court a petition was heard from Mr. W. A. Wylie, Westburn Gardens, Kelvinside, on behalf of the Kirklands Trustees, for permission to erect a building of nine stories and basement in Waterloo Street, adjoining Corn Exchange. When the application was brought before the Court a few weeks ago objections were stated from the Bench in the public interest, as to the serious damage that would arise were fire occurring in such a building, there being no exit except by one stair, on both sides of which were hoists leading from the bottom to the top. The hoisting, it was stated, would act as a funnel in the case of fire. The Bench desired to call the attention of proprietors to the undesirability of such high buildings. The case was again adjourned.

MR. R. M. BEACHCROFT, of the Building Act Committee of the London County Council, has placed a motion on the paper suggesting that, "as the present system which obtains in London with regard to the supervision of buildings and the responsibility for their proper construction, both from a structural and sanitary point of view, is unsatisfactory," the Building Act Committee should report fully on the subject. An inquiry on the lines proposed should, if properly conducted, prove very useful. The investigation ought, however, to be an exhaustive one, and care should be taken to obtain the views of all concerned. A one-sided inquiry would be worse than useless, as it would tend to increase the dissatisfaction that already exists.

A CONFERENCE of representatives of the sub-committee of the Lancashire and Cheshire Building Trades Employers' Federation and the operative stone-masons has recently been held at Manchester, with the object of bringing about a settlement of the dispute between the masons and their employers. The dispute has lasted close upon three months, and in Manchester, Preston, Rochdale, Lancaster, Blackburn, Burnley, and Bury the men have been on strike; whilst in many other important centres in the two counties lock-out notices had been posted, in the event of no settlement being arrived at. In some towns the operatives have been on strike since May 1st, and in Manchester they ceased work on the 15th of the same month. The outlook was, therefore, most unpromising, and the delay in building operations at this period of the year, to say nothing of the threatened deadlock, was looked upon with dismay. There is, however, a prospect of a happier state of things existing as the result of this conference. Mr. R. Nield, Jun. (Manchester), President of the Employers' Federation, occupied the chair. The spokesman for the operatives was Mr. Crossman, Secretary of the Union. We understand that a rule with respect to worked stone was drawn up and accepted by both parties, and that, subject to details being settled locally, the dispute is at an end. We understand that, under certain conditions, the workmen agree to fix worked stone imported from another town, and that in Manchester and several other towns the wages will be advanced $\frac{1}{4}$ d. per hour, instead of 1d. asked for by the men.

Surveying and Sanitary Notes.

THE Croydon Corporation is desirous of sinking a well at Waddon for the purpose of giving the town an additional water supply. In order to do this it applied to the Local Government Board for permission to borrow £32,000, but when the inquiry was opened last year so much opposition was offered by certain Riparian owners on the river Wandle that the matter dropped. The Board has since, however, determined to reopen the inquiry, and last week Mr. G. W. ? and Dr. S. W. Wheaton sat for the purpose of taking further evidence on the subject.

BEFORE adjourning until the autumn, the Royal Commission on London Water Supply, of which Viscount Llandaff is chairman, held a sitting for the purpose of hearing further evidence on behalf of the water companies from Mr. Reginald Middleton, assistant commissioner to Lord Balfour's Commission, and one of the engineers of the Staines Reservoirs Scheme, who estimates that it would be possible to take 400,000,000 gallons of water daily from the Thames to supply the requirements of London, without reducing the flow over Teddington Weir below 200,000,000 gallons a day. It would be possible from various sources within a reasonable distance of the metropolis, including further wells that might be sunk in the chalk, to obtain 645,000,000 gallons of water a day, which would be sufficient to enable the companies to go on supplying for a long period. With such materials at hand, it was unnecessary to go to Wales.

A LEAKAGE recently occurred in the bed of the Kennet and Avon canal at Bath, at a point about half a mile from its junction with the river Avon. The water got into a culvert opening on the Great Western main line. Being much below the level of the canal, the line soon became partially flooded, and the drainage was totally inadequate to carry off the water. The torrent flowed up and down the line, and by nine o'clock was not far from Bath station, half a mile distant. The leakage was lessened somewhat by throwing into what became a whirlpool, boards and rubbish, but it is considered that it will be difficult completely to stop it as there is no lock near. The permanent way at the point of inundation has been already weakened, and trains have to pass at a slow speed. Not long since the banks of the same canal gave way four miles out of Bath.

THE Public Control Committee of the London County Council have received a letter from the departmental committee of the Home Office which is considering the questions of the manufacture and supply of water gas, asking for the opinion of the Council on the subject. The Public Control Committee now report that, having carefully considered the matter, they have come to the following conclusions, which they have communicated to the departmental committee:—(1) That considerable danger arises from the introduction of water gas in the process of the enrichment of water gas; (2) that non-carburetted and non-odorised water gas should not be allowed to be used under any conditions, since it is devoid of smell, which would give warning of any escape of the gas; (3) that 25 per cent. should be the maximum amount of water gas allowed to be introduced in the enrichment of coal gas, the proportion of water gas being ascertained by determining the amount of carbonic oxide in the enriched coal gas (coal gas enriched to this extent would correspond in poisonous character to the Dowson gas which is already in use for heating purposes and for gas engines, and would exclude the use of carburetted water gas); (4) that when it is proposed to supply poisonous enriched gas to houses and the interior of buildings a proper inspection be made of the service pipes by a responsible officer appointed by the local or other suitable

authority, who should certify that the pipes are in a sound condition and that there is no escape of gas, and that the cost of such inspection be borne by the gas company.

THE QUEEN publicly opened, last Saturday week, a new road at East Cowes which Her Majesty has presented to the inhabitants in exchange for a road in contiguity to the Royal demesne. The exchange has been the subject of protracted correspondence, and opposition has been raised by a section of the inhabitants. The Queen, however, has been most magnanimous in her treatment of the town, and, when it became known that the inhabitants would prefer an exchange in lieu of a sum of money for the purchase of a road which the Queen desired to include in her private estate, Her Majesty generously decided to give to the town a piece of land twenty-two acres in extent, lay it out, and metal it as a public highway and pass it over to the town free from encumbrance. The new road leads from Victoria Grove to Whippingham Road, thus furnishing a shorter thoroughfare between the two parishes. It is 500 yds. long and 50 ft. wide, and the land provides a space which can be used for recreation and other purposes. The road acquired by the Queen forms one side of the Oval, a name by which the neighbourhood has been locally known for many years past. The outer link of the oval comprises the public highway from Cowes to Ryde, and the side relinquished to the Queen, connected at each end with the main road by a short loop, reaches from the State entrance to Osborne grounds to that known as the Prince of Wales's Gate. It is not so long, and only about half as wide as the new road given in exchange, and, as it is a mere duplicate of the main road so far as it goes, it is of comparatively no value to the general public.

MR. JAMES GREEN, the valuer appointed by the Local Government Board, continued last week his inquiry as to the value of the land and buildings in the "betterment" area of the London County Council's Strand improvement scheme. The first case was that of the Strand Hotel Buildings. Nos. 1, 2, and 3 are freehold houses and shops, let on lease at £365 per annum, and containing an acre of 807 ft. Mr. Robert Reid, of Great Marlborough Street, estimated the present value at £540 per annum, and the value of the freehold in possession at £13,500, of which he fixed £2656 as the value of the buildings and £10,844 of the land. The five freehold houses and shops, Nos. 5, 6, 7, 8, and 9, Strand Hotel Buildings, containing an area of 1762 ft., are let on a lease at a rental rising from £610 to £700. Mr. Reid estimated the yearly value at £1050, and the value of the freehold in possession at £26,250, £5242 for buildings and £21,008 for land. No. 10, Strand Hotel Buildings, a house and shop, with an area of 393 ft., is let on lease at £140 per annum. Mr. Reid estimated the yearly value at £210, and the value of the freehold in possession at £5250, £1156 for buildings and £4094 for land. Mr. Andrew Young, the valuer of the Council, and Mr. G. H. Wilkinson valued the whole of the freehold property, Nos. 1 to 10, at £1205 per annum, and at twenty years' purchase, less deductions, at £23,815. The land they valued at £3 per foot—for 2992 ft., £8976. The leasehold house, shop, and buildings, No. 11, Strand Hotel Buildings, are held under a lease from the vicar and churchwardens of St. Giles, Cripplegate, for eighty years, from 1863, at a ground-rent of £85 per annum, and are under-leased to the Earl of Kilmorey for the whole term at a rental of £230 per annum. Mr. Reid valued the property at £380 per annum, and the freehold in possession at £9500. Mr. A. Young valued the lessee's interest at £1287. The last case was that of chambers over 39 and 40, Wych Street, the property of Mr. Wright. No evidence was offered for the claimant. The premises are leased for a term expiring in 1956 at £75 per annum, sublet for the whole term at £95. Mr. Young valued the lessee's interest at £202, and the freeholder's interest at £1628. The enquiry was then adjourned till October 25.

PRACTICAL CARPENTRY AND JOINERY.*

BY GEORGE ELLIS.

IX.—WINDOWS.

(Continued from page lxxiv.)

CASEMENTS.—This term is applied somewhat loosely to all solid frames, but, strictly speaking, it should be used only to those in which the sashes are hung on hinges, like doors. When the frame contains mullions, and the sashes are in pairs, as shown in Fig. 141, it is called a French casement. In these frames all rebates, mouldings, &c., are worked in the solid, and the joints mortised and tenoned together. Fig. 140 is a vertical section; Fig. 142 horizontal section; Fig. 141 an inside elevation of a French casement, with the central pair of sashes hung to open inwards, the side lights fixed, and the fanlights hung at the bottom, opening inwards. The outside vertical members of the frame are called jambs, J, the inner ones mullions, M, the horizontal division a transom, T, the top member, the head, H, the bottom one, the cill, C, which is always made of some hard and tough wood, as oak or teak. As in other frames, the vertical members of the sashes are termed stiles, the horizontal ones rails. When the sashes open inwards much difficulty is experienced in making them weather-tight, as, of course, the pressure of the wind tends to open them. Many ingenious devices have been invented for the purpose, several of them being the subjects of letters patent. The methods shown in the drawings and the enlarged details (Figs. 143-146) have proved very effectual, but need good workmanship in the fitting; a $\frac{1}{2}$ in. projecting tongue is formed on the outside of the hanging stile, fitting easily into a corresponding groove in the mullion, which must be stopped at the cill to prevent

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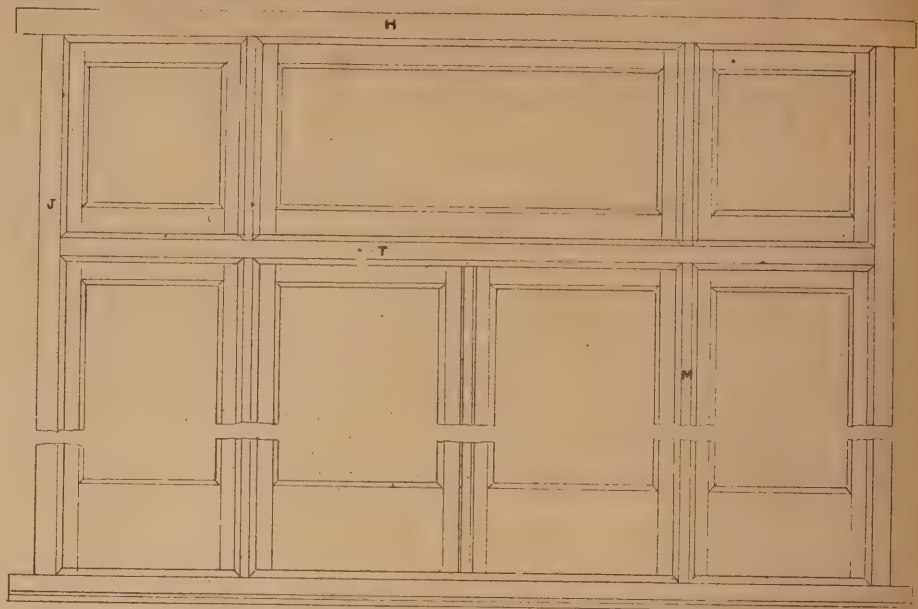


FIG. 141. A FRENCH CASEMENT. INSIDE ELEVATION.

access of water to the interior of the wall by way of the mortise. The meeting stiles are fitted with a peculiar joint, shown at N, Fig. 142, called a hook joint, and should be provided with double tenons to avoid end grain in the hooks. A watertight joint is secured at the cill by the use of Adams' patent water bar; this consists of an $1\frac{1}{2}$ in. brass bar extending right across the opening, and hinged to a casting fixed to the cill. When the sash is open, the hinged bar lies down nearly flush with the cill; as the sash is closed, a projecting spur in its bottom edge passes under the bar through a slot, lifts it up, and finally presses it close to the guard piece screwed on the outside of the sash. These casements are usually fastened by an espagnoletti bolt

extending the whole height of the sash, and fastening the door at three points by one turn of the handle. When the fanlight is to open, precaution must be taken against the ingress of water at the transom; two methods are shown at Figs. 143 and 145, in the former the light is hinged to the transom, and the joint is protected by an iron bar and the throating and weathering of the transom; in the latter, the light being hung at the top, there is greater risk of water getting in, and a gutter is worked in the transom to receive any that may drift in, which escapes by the copper tube shown in the dotted lines.

PIVOTED LIGHTS are sashes hung in solid frames upon centres or pivots either horizontally or vertically; the former are usually termed "centre-hung," and are used in lanterns, rear walls, and other inferior or inaccessible positions. They are actuated by cords, or geared metal rods. The pivots should be let into the frame a little above the centre, so that the lower part of the sash, being the heavier, shall keep shut by its own weight; the sockets are let into the sash and a path cut for the pivot through the face of the stile. This is covered by the portion of bead nailed to the sash when the latter is hung. To obtain the bevels for cutting the beads the sash is drawn at the angle it is desired to open it, with the beads in position above and below; at the points where the outer lines intersect with the same lines in a vertical position, draw lines in a direction away from the centre, at an angle of 45° , and those will represent the cuts.

Fig. 132A is an isometric sketch of the end of an oak cill, with the linings removed to show the method of trenching the pulley stile referred to on page lxxxiv. ante.

Fig. 133A is an enlarged detail at the cill in Fig. 132.

Fig. 134A is a detail of the boxing shown in Fig. 134.

Fig. 138A shows two methods of forming pocket-pieces, that at A showing the aperture in the middle of the stile, that at B cut through the inside. All the above illustrations should have appeared in the previous chapter, but were crowded out.

(To be continued.)

THE dispute in the building trade in the Ashton-under-Lyne district ended a few days ago, when the stonemasons resumed work at an advance of $\frac{1}{4}$ d. per hour.

THE Birmingham Corporation want to borrow £5000 in order to carry out a scheme of improved drainage for the low-lying portion of Balsall Heath between Balsall Heath Road and Edgbaston Road. The present drains are too shallow to effectively drain the district; hence the necessity for the present work.



FIG. 142. SECTION ON A-B. A FRENCH CASEMENT.

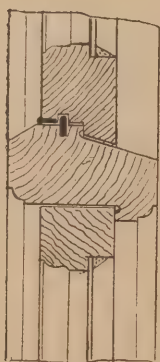


FIG. 143. DETAIL OF TRANSOM.

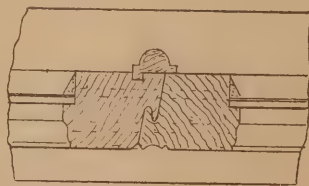


FIG. 144. DETAILS AT N, FIG. 142.

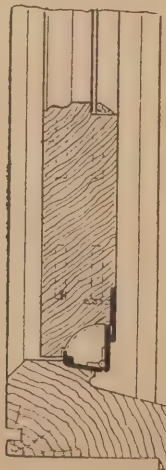


FIG. 146. CILL WITH PATENT WATER BAR.

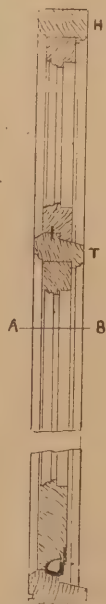


FIG. 140. SECTION ON C-D. A FRENCH CASEMENT.

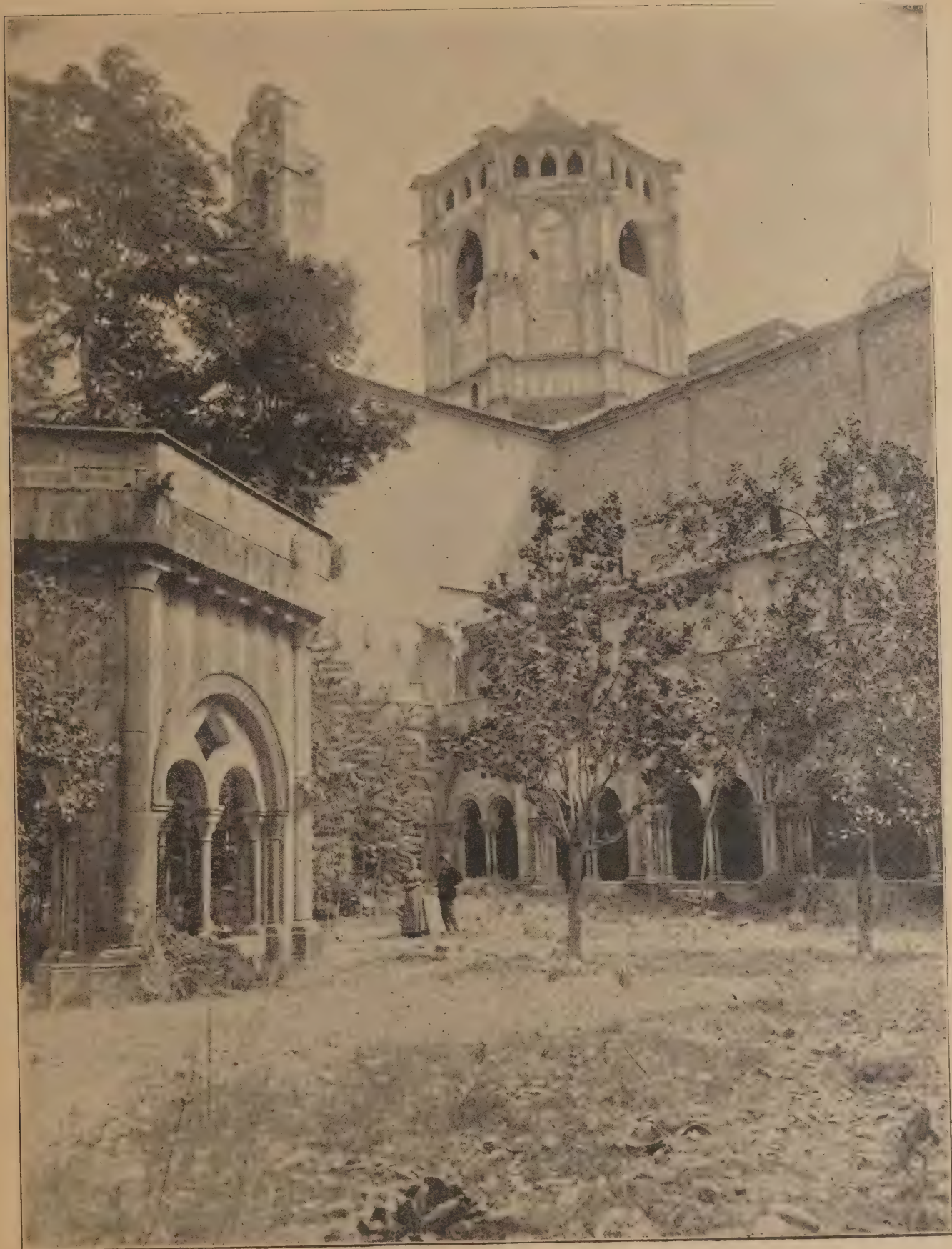
FIG. 145. DETAIL OF TRANSOM AND HEAD.

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THE MONASTERY OF POBLET: RETABLO OF HIGH ALTAR.

Vide SPAIN: ITS PICTURESQUE CITIES AND MONASTERIES.



THE MONASTERY OF POBLET: GREAT CLOISTER WITH "TEMLETE."

Vide SPAIN: ITS PICTURESQUE CITIES AND MONASTERIES.

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WHAT IS A "NEW STREET?"

THE action of *Allen v. Fulham Vestry*, heard in the Queen's Bench Division before Mr. Justice Day and Mr. Justice Ridley, was a special case stated by a metropolitan magistrate upon the hearing of three summonses issued at the instance of the vestry of Fulham under section 226 of the Metropolis Management Act, 1855, on complaints that W. G. Allen and H. G. Norris had refused to pay £554 12s. 6d. and other appellants other sums apportioned on premises belonging to them in respect of the estimated expenses of paving a portion of Wandsworth Bridge Road called section 4, under section 105 of the Metropolis Management Act, 1855, and section 75 of the Act of 1862. The question mainly was whether this was a "new street" within the Acts, for if it were the vestry was entitled to apportion the expenses on the frontages. Wandsworth Bridge Road, of

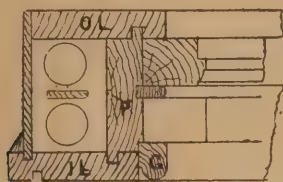


FIG. 134A. DETAILS OF CASING.

which section 4 is part, forms a means of approach on the north side of Wandsworth Bridge. Such bridge, together with the said road, was made pursuant to the Wandsworth Bridge Act, 1864, by the Wandsworth Bridge Company in August, 1873. The road then ran through agricultural land, and was bordered by market gardens. By section 62 of that Act it was enacted that when the road was completed it should be

DEEMED A PUBLIC HIGHWAY,

and be repairable by the Fulham District Board of Works. In August, 1873, the road was made, but the Board thought it impracticable as a road, and refused to accept it. After protracted negotiations and litigation, however, an agreement was entered into on September 14th, 1876. Under it the Fulham

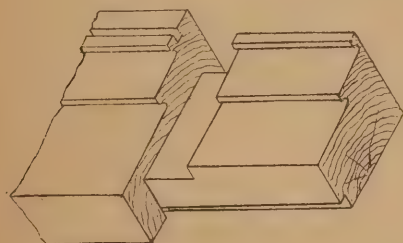


FIG. 132A. METHOD OF FITTING CILL.

District Board of Works agreed with the company, in consideration of the sum of £1750, to complete and put in repair the Wandsworth Bridge Road, and to make it in all respects fit for the purposes of a public highway within the meaning of the Wandsworth Bridge Act, 1864, and the Fulham District Board undertook the liability of repairing the said road as imposed upon them by the Wandsworth Bridge Act, 1864, and exonerated the company from liability. In 1877 the Board made up the carriage way with flints rolled in over a hard core. In the case of house-built streets the same method of making up was frequently adopted when the traffic was light. After twelve months the carriage way was

REPAIRED WITH GRANITE,

and this process had been repeated by the local authority down to the year 1897. No channelling or kerbing was done, except that the road was repaired in a permanent way and in the same mode and to the same extent as new streets with a similar amount of traffic

were dealt with. There were no buildings upon the land adjoining the road until 1890. In that year houses were erected on the east side. In the years 1895 and 1896 houses were first built on the west side. On February 24th, 1897, the vestry of the parish of Fulham, which is the successor of the Fulham Board of Works, passed a resolution that the road should be paved and the costs be apportioned on the frontages. It was proposed to pave it with wood blocks laid on a concrete foundation, which was more expensive than macadam. The magistrate found that the road was not originally laid out as a street. It was contended on behalf of the vestry that the said road became for the first time a new street when buildings were erected upon the land adjoining it, and that the vestry had when that was done power to require the adjoining owners to pave it. It was also contended that

WOOD PAVING WAS "PAVING"

within the meaning of the Acts of 1855 and 1862. It was contended on behalf of the appellants that it was a "new street" when it was made by the company, and that it having in 1877 and 1878, pursuant to the requirements of the vestry, been, with the exception of the flagging of the footpaths and of the channelling and kerbing of the carriage way, as well paved as streets with similar traffic were then required to be paved prior to their being taken over by the vestry. Under section 105 of the Metropolis Management Act, 1855, the vestry could not now say that it was not then a street. It was also contended that, assuming the vestry had power to require the road to be paved, it had no power to require the carriage way to be made up at the expense of the adjoining owners with wooden blocks laid on a concrete foundation. The magistrate held (1) that the road was not in 1877 or 1878 a "new street"; (2) that it became a "new street" for the first time after the erection of houses therein, and that it was a "new street" in February, 1897; (3) that the vestry was not prevented by anything done previously from requiring the road to be paved; and (4) that wood paving was paving within the Acts. The magistrates accordingly ordered the appellants to pay the vestry the sum mentioned in the summonses.—The Court upheld the magistrates' decision.

IN spite of the large powers conferred on County Councils to suppress river pollution, the evil still flourishes in many parts of the kingdom. But we may hope that the almost incredible state of things just represented in an official report to the Nantwich Rural Council has few parallels. Throughout the extensive area under the Council's jurisdiction, pollution appears to be the rule rather than the exception. At one place an artificial lake in a public park has become a reservoir for sewage; every time the dam is open, a black deluge pours through the outlet. In the same pleasant neighbourhood, a municipal sewage farm is incapable of absorbing the quantity deposited; with the result that the surplus "runs off in little rivulets." Next we read of a stream so polluted that it is "dangerous even to cattle," while the river Weaver is described as having reached almost the same condition. Finally, the Medical Officer of Health pronounces that "pollution is going on all over the Council's district," of course, to the endangerment of all human beings who are compelled to live there. Has no attempt been made, then, to ameliorate their insanitary surroundings? Not yet, apparently; the matter remains "under consideration," like the purification of the Lea and the Brent. The Cheshire County Council is credited with "having taken the matter in hand," while the Rural Council, after listening to the report, appointed a committee "to report as to the condition of various streams in the district." But neither of these august bodies has yet adopted any actual remedial measures; it will, perhaps, require some sharp outbreak of epidemic disease to convince them that systematic river pollution is a standing menace to public health.

Building on the Embankment.

AT last week's meeting of the London County Council the Building Act Committee submitted the following recommendation: "That the consent of the Council be not given to the erection of new Head Offices, with oriel windows, on the Victoria Embankment to abut at the rear upon Tallis Street, and flank upon Temple Avenue, and to exceed in height the width of those streets respectively, as shown upon the plans, submitted with the application of Mr. A. N. Bromley on behalf of the National Telephone Company Limited; as it is considered inexpedient to consent to the construction of the proposed projections



FIG. 133A. DETAILS AT CILL.

over the public way, to the extent shown upon the deposited plans, without the concurrence of the Corporation of the City of London." This was carried.

THE NEW OFFICES OF THE ASYLUMS BOARD.

The same committee further recommended: "That the consent of the Council be given to the erection of new offices on the Victoria Embankment, Whitefriars, at the corner of Carmelite Street, with the flank of the building to exceed in height the width of the street, as shown upon the plans submitted with the application of Mr. E. T. Hall, on behalf of the Metropolitan Asylums Board, such consent being subject, however, to the following conditions—that the new building be made in entire conformity with the letter of application, and as shown on the plans accompanying it, and be not at any time, in any manner, altered or raised without the consent of the Council; and that, if such plans or application be here-

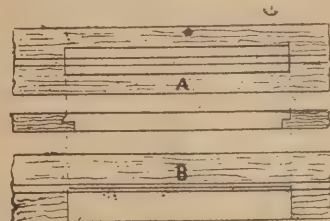


FIG. 138A. TWO METHODS OF CUTTING POCKET

found to be inaccurate in any particular, the consent of the Council shall be null and void." This was passed.

UNSATISFACTORY MEANS OF ESCAPE FROM FIRE.

The committee, reporting on another application from the City, submitted the following recommendation: "That Mr. C. Thompson be informed that the Council, in the exercise of its powers under section 63 of the London Building Act, 1894, is not prepared to grant a certificate in respect of the means of escape in case of fire to be provided for the persons dwelling or employed on the top floor of 147, Queen Victoria Street, as shown upon the plan, dated June 24th, 1898, submitted by the applicant on behalf of Messrs. Babcock and Wilcox; as the plan showing the proposed means of escape is unsatisfactory, the construction of the building and the external balconies is not properly shown, and, moreover, no explanation is given as to how the persons on the top floor of the building would reach the ground."—This was adopted.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Aug. 6	Staple Hill—Police Station	Committee	M. H. Madland, 15, Clarence-street, Glasgow.
" 6	Clacton-on-Sea—Cottage Hospital ... ..	...	J. W. Martin, Station-chambers, Clacton-on-Sea.
" 6	Halifax—House	Football Club	M. Hall, 29, Northgate, Halifax.
" 8	Batley Carr—Store ... ..	...	Holton and Fox, Northgate, Dewsbury.
" 8	Brynmaur—Block of Shops ... ..	...	Railway Hotel, Brynmaur.
" 8	Handsworth—Schools	School Board	J. D. Webster, 19, St. James's-street, Sheffield.
" 8	Preston—Additions to Workhouse	Union Guardians	Mr. Whitwell, Fulwood Workhouse, Preston.
" 8	Wrekenton—School	Gateshead School Board	E. Bowman, County-chambers, Westgate-road, Newcastle.
" 9	Dunycove—Coastguard Station ... ..	...	Carpenter-in-Charge, Queen's College, Cork.
" 9	Frindsbury—Additions to Schools	School Board	G. E. Bond, High-street, Rochester.
" 9	Ilkley—Three Villas ... ..	...	Isitt, Adkin, and Hill, Prudential-buildings, Bradford.
" 9	Llanfrisant—Goods Sheds, &c.	Great Western Railway Co.	Engineers, Newport Station.
" 10	Broughton—Bridge	Wrexham Rural District Council	J. Strachan, Crispin Lodge, Wrexham.
" 10	Sandwich—Additions to Schools	School Board	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 10	Ulverston—Caretaker's House ... ..	...	J. W. Grundy and Son, Brogden-street, Ulverston.
" 11	Halifax—House and Shop	B. Sykes	W. C. Williams, 29, Southgate, Halifax.
" 11	Kilkenny—Dormitory to Workhouse, &c.	Guardians	J. E. Reade, Kilkenny.
" 12	Halifax—Alterations to Works	Pioneer Tool Works	M. Hall, 29, Northgate, Halifax.
" 13	Burnley—Wards to Workhouse	Guardians	S. Keighley, Nicholas-street, Burnley.
" 15	Bexhill—Boundary Walls, &c.	Urban District Council	G. Ball, Surveyor, Bexhill.
" 15	Ecclesfield—Seven Cottages ... ..	...	G. A. Wilson, Harkhead-chambers, Sheffield.
" 15	Gloucester—Hospital	Corporation	Waller and Son, Gloucester.
" 15	London, E.C.—Battery Room, &c.	Shoreditch Vestry	Kincaid, Waller, and Manville, 29, George-st., Westminster.
" 25	Sunderland—Technical College	Corporation	Town Clerk, Sunderland.
" 31	Consett—Institute Buildings	Technical Institute Committee	C. E. Oliver, Consett Iron Co.'s Office, Blackhill, Durham.
" 31	L'anarmon—Alterations to Chapel ... ..	...	N. Lloyd, Bwlchgwyn Quarries, Wrexham.
Sept. 19	Swansea—Board School	School Board	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
No date.	Aberdeen—Cottage	" Bury Guardian " Company Limited	J. Kemp, 621, George-street, Aberdeen.
"	Bury—Premises ... ..	...	A. Hopkinson, 15, Agur-street, Bury.
"	Carlisle—Alteration to School ... ..	...	Johnstone Bros., 39, Lowther-street, Carlisle.
"	Rathmore—Walls, &c. ... ..	...	Presentation Convent, Mount St. Joseph's, Rathmore, Co. Kerry.
"	Throckley—Ten Cottages	Co-operative Society Limited	F. C. Charlton, Throckley.
"	York—Additions to Shop ... ..	...	A. Creer, Guildhall, York.
"	Saltash—House ... ..	...	J. P. Rundle, Sherwood Villa, Saltash.
"	Exeter—Alterations to Hospital ... ..	...	C. Coley, 50, High-street, Exeter.
"	North Ormsby—Cottage Hospital ... ..	...	J. M. Bottomly, 28, Albert-road, Middlesbrough.
"	Hessle—Mission Room ... ..	...	J. Thropp, 29, Broadgate, Lincoln.
"	Woodhouse—Schools	Handsworth School Board	J. D. Webster, 19, St. James's-street, Sheffield.
ENGINEERING—			
Aug. 6	Bristol—Bridge, &c.	Docks Committee	Engineer's Office, Cumberland-basin, Bristol.
" 6	Leven—Pipe-laying	Police Commission	H. Bruce, County Buildings, Cupar.
" 6	Perth—Extension of Quay	Town Council	Burgh Surveyor, Perth.
" 6	Ashton-in-Makerfield—Waterworks	Urban District Council	J. W. Liversidge, Bryn-street, Ashton-in-Makerfield.
" 6	Stowmarket—Sewage Pumping Machinery	Town Council	J. Taylor and Sons, 27, Great George-street, Westminster.
" 8	Glasgow—Supply and Erect Crane	Clyde Navigation	G. H. Baxter, Glasgow Harbour.
" 8	Sedgley—Heating Apparatus	School Board	A. E. Greenway, 1, Church-street, Coseley.
" 8	Abergavenny—Footbridge, &c.	Rural District Council	J. Gill, Hereford-road, Abergavenny.
" 8	Belfast—Supply and Erect Crane	Harbour Commissioners	G. F. L. Giles, Belfast Harbour.
" 10	Alton—Supply Road Rollers, &c.	Rural District Council	M. H. Moss, Town Clerk, Alton.
" 10	Bamford—Reservoirs, &c.	Rural District Council	Sterling and Swann, Town Hall, Chapel-en-le-Frith.
" 12	Bridgend—Boiler ... ..	...	Medical Superintendent, County Asylum, Bridgend.
" 13	Hunslet—Pipe-laying	Rural District Council	W. B. Pindar, Leek-street, Hunslet.
" 14	Culter—Pipe-laying ... ..	...	Beattie and Macdonald, 21, Bridge-street, Aberdeen.
" 18	Valetta, Malta—Bogie Tank Engine ... ..	...	Crown Agents for the Colonies, Downing-street, S.W.
Sept. 1	London, E.C.—Refrigerating Plants	Transvaalsche Koelkamers Beperkt	National Bank of South Africa Republic, 73, Cornhill, E.C.
No date.	Risca—Repairing Weir	Monmouthshire Sheet & Tin Plate Co.	Monmouthshire Steel & Tin Plate Co., Pontymister Works.
"	Pemberton—Electric Lighting	Urban District Council	P. Partington, Council Offices, Pemberton.
IRON AND STEEL—			
Aug. 8	Padiham—Cast-iron Pipes	Urban District Council	G. Gregson, Council-chambers, Padiham.
" 9	Blackrod—Gas Pipes	Gas Company	J. Kellett, Gasworks, Blackrod.
" 15	Uganda—Steel and Iron Work	Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 23	Coolgardie, Australia—Steel Pipes	Government of Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
No date.	Hoylake—Standards and Railings	West Kirby Urban District Council	T. Foster, Public Offices, Hoylake.
ROADS—			
Aug. 6	Slough—Street Works	Urban District Council	Surveyor to the Council, Mackenzie-street, Slough.
" 6	Dewsbury—Supply of Materials	Corporation	H. Dearden, Town Hall, Dewsbury.
" 6	Earlestown—Road Works	Urban District Council	Surveyor, Town Hall, Earlestown.
" 6	Great Harwood—Roadway	County Council	W. H. Radford, 19, Brazenose-street, Manchester.
" 6	Newton-in-Makerfield—Road-making	Urban District Council	Surveyor, Town Hall, Earlestown, Newton-le-Willows.
" 8	Colchester—Road-making	Roads and Drainage Committee	H. Goodyear, Stanwell-street, Colchester.
" 8	Tynemouth—Paving	Corporation	J. F. Smilie, Borough Surveyor, Tynemouth.
" 10	Brackwell—Street Works	Rural District Council	Borough Clerk, Brackwell.
" 13	Hastings—Cartage, &c.	Rural District Council	A. R. Inskipp, 11, Wellington-square, Hastings.
No date.	Arnold—Kerbing, &c.	Urban District Council	J. R. Swift, Front-street, Arnold.
SANITARY—			
Aug. 8	Guildford—Drainage Work	Town Council	C. G. Mason, Borough Surveyor, Tunsgate, Guildford.
" 8	Holytown—Drainage Works	District Committee	Crouch and Hogg, 175, Hope-street, Glasgow.
" 8	Warkworth—Sewerage Works	Rural District Council	H. W. Walton, Alnwick.
" 8	Rochford—Repairs to Sewerage Tanks	Rural District Council	F. Gregson, Alexander-street, Southend.
PAINTING AND PLUMBING—			
Aug. 8	Mansfield—Painting ... ..	...	Headmaster, Brunt's Technical School, Mansfield.
" 9	London, S.E.—Painting ... ..	...	J. B. Bateman, Baths, Spa-road, S.E.
" 10	London, S.W.—Painting, &c., Workhouse	Guardians	A. N. Henderson, Union Offices, St. John's Hill, Wandsworth.
" 15	London, S.E.—Painting	Guardians Lewisham Union	R. Williams, 20, Northbrook-road, Lee, S.E.
" 29	Stafford—Painting at Cemetery	Corporation	W. Blackshaw, Borough Surveyor, Stafford.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
" 16	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 17	Pontyvaun—County School (£2000 limit)	£5 (merged)	Newton Wade, Clerk, 39, Dock-street, Newport, Mon.
" 31	Glasgow—City Improvements	£100, £50, £25	Glasgow Corporation.
" 31	Glasgow—City Improvements between King-street, City, and the New Wynd	£100, £50, £25	J. D. Marwick, Town Clerk, City-chambers, Glasgow.
" 31	Stockholm—City Railway Stations and Junctions	£656, £438, £219	Consulate General, 27, Great Winchester-street, E.C.
Oct. 3	Liverpool—New Buildings for Royal Institution	£52 10s., £21	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Godalming—Football Stand (150 seats—£150 limit)	£3 3s.	Secretary, Recreation Club, Godalming.
" 3	Leamington—Free Library and Technical Institute	£105 (merged), £52 10s.	H. Consett Passman, Town Clerk, Leamington.
" 3	Rotherham—Extension Baptist Schoolroom (£600 limit)	£250	A. Crowcroft, Clifton-crescent, South Rotherham.
No date.	Plymouth—Tavistock-street Buildings (no Assessor) ... ..	...	J. H. Ellis, Town Clerk, Plymouth.

Property and Land Sales.

HAMPTON AND SONS,

ESTATE AGENTS, AUCTIONEERS, AND VALUERS.

1898.

HAMPTON AND SONS beg to announce that their AUCTIONS of LANDED ESTATES, Town and Country RESIDENCES, INVESTMENTS, BUSINESS PREMISES, and other PROPERTIES are held MONTHLY at the Mart, Tokenhouse-yard, E.C.

Auctions can also be held on other days in Town or Country by arrangement; also Sales and Valuations of Furniture, Pictures, Farming Stock, Timber, &c.

List of Estates, Town and Country Residences, Hunting Boxes, and Sporting Properties can be had gratis on application to **HAMPTON AND SONS (LTD.)**, 1, Cockspur-street, S.W.; or by post, three stamps.

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SMALL SPORTING ESTATES, 13 FARMS, FULLY LICENSED INN, RICH MARSHES, WOODLANDS, ACCOMMODATION AND BUILDING LAND, COTTAGES, &c., being the outlying portions of the Sussex Estates of Sir James Duke, Bart., and extending to about 2750 acres, divided into numerous lots. They comprise:

Magham Down and Cottages in Hailsham and Hurstmonceux.

Amberstone Farm, Accommodation and Building Land in Hailsham.

Hempstead Farm and Building Land in Hellingly.

The Whyly Estate, East Hoathly, a capital sporting property, with grand coverts.

Squire and Tuett's Farms, Framfield.

The Merry Harriers Inn and 16 acres, Cowbeech.

Cowbeech House and Farm.

Beech Hill Estate, about 390 acres, of which 84 are wood. One of the most complete little sporting properties in the county.

Clippingham Farm, Hurstmonceux.

Straight Ditch Marshes in Pevensey Level.

Sandhill and School Farms and Marshes, Hoee.

Holmbush Farm, Hellingly, 85 acres.

Carter's Corner or Cowbeech Hill Farm, 46 acres.

Strood and Gatehouse Farms and Woodlands at Chiddingly.

Swansbrook Wood.

West-street Farm, Hellingly.

All the lands are let at fair rentals and mostly to tenants of long standing, and offer a good opportunity for the sound investment of capital in an improving security.

Many of the properties have long frontages and could readily be sub-divided or developed, there being a large demand for small residences in the district.

HAMPTON AND SONS

Will SELL the above valuable estates by AUCTION, in numerous Lots, at the White Hart Hotel, Lewes, on TUESDAY, SEPTEMBER 6th, at THREE o'clock precisely (unless previously disposed of privately).

Particulars and Plans of the Vendor's Solicitors, Messrs. PONTIFEX, HEWITT, and PITT, 16, St. Andrew-street, Holborn-circus, E.C.; of Messrs. DRAWBRIDGE and ANSELL, Estate Agents, Hayward's Heath, Sussex; and of the Auctioneers, HAMPTON AND SONS LTD., 1, Cockspur-street, London, S.W.

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EDWIN J. GILDERS has been favoured

with instructions to SELL by AUCTION, at the Royal Hotel, Clacton-on-Sea, on SATURDAY, AUGUST 6th, 1898, at 8.30 o'clock in the evening:—

69 Plots of valuable FREEHOLD BUILDING LAND. Seven MARINE RESIDENCES.

Four SHOPS and valuable BUSINESS PREMISES, producing a rental of £410 per annum.

Particulars, plan, and conditions of sale of Messrs. CHAMBERLAYNE and SHORT, Solicitors, Donington House, Norfolk-street, Strand, London, and Clacton-on-Sea; Messrs. SAVERY and STEVENS, Solicitors, 2, Brabant-court, Philpot-lane, E.C.; Messrs. WITTEY and DENTON, Solicitors, Colchester; and at the Auctioneer's Office, 10, Union-court, London, E.C., and Clacton-on-Sea.

Westgate-on-Sea, proverbially one of the healthiest towns on the English coast, 1½ hours' journey from London.—Valuable sites in choice positions, suitable for the erection of marine residences.

MESSRS. ROGERS, CHAPMAN, and

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will SELL by AUCTION, at the Station Hotel, Westgate-on-Sea, on WEDNESDAY, AUGUST 31st, 1898, at THREE p.m. precisely, in lots, several PLOTS of LAND, commanding sea views, and others suitable for erection of detached and semi-detached residences of good character; also a few shop plots. Favourable opportunities are offered to gentlemen desirous of building to their own tastes in a select seaside resort, with excellent bathing, pure water, good train service, sheltered gardens, and public promenades. Arrangements can be made for payment by instalments.—Plans, particulars, and conditions of sale of Messrs. FARRER and Co., Solicitors, 66, Lincoln's Inn-fields, W.C.; of Mr. R. Temple, Estate Office, Westgate-on-Sea; and of the AUCTIONEERS, 50, Belgrave-road, South Belgravia, Gloucester-road, South Kensington.

FREEHOLD BUILDING LAND.—TO BE SOLD, a valuable BUILDING SITE, with extensive frontage to Lordship-lane, East Dulwich, and having an area of over 45,000ft. super. Suitable for the erection of a school or public building. Price £2000. Also several smaller plots, prices £140 to £600.—Plans and particulars of Mr. A. E. VIZARD, 12, Regent-street, Pall-mall, S.W. 1

Sales by Auction for the Year 1898.

MESSRS. JONES, LANG, and CO. beg to state that their SALES of ESTATES, Town and Country Residences, Freehold and Leasehold Investments, Building Land, and other Properties, will be held at the AUCTION MART, Tokenhouse-yard, City, in each MONTH of 1898. Particulars of properties intended for disposal should be sent at least three weeks previous to date of sale.

Messrs. Jones, Lang, and Co. also undertake Sales of Household Furniture, Farming Stock, and general Personal Effects, in town or country. Messrs. Jones, Lang, and Co.'s Printed Tabulated List of Warehouses, Offices, and general Business Premises to be Let or Sold, in the City of London and neighbourhood, can be had free on application.

Auction, Survey, and Estate Offices, 3, King-street, Cheapside, London, E.C. Branch Offices, 101, Leadenhall-street, E.C., and 27, Chancery-lane, W.C. Telegraphic address, "Wonderment, London."

TO CONTRACTORS, BUILDERS, WHARFINGERS, AND OTHERS.

BY ORDER OF THE KENSINGTON VESTRY.

NOTICE OF SALE BY TENDER OF FREEHOLD and LEASEHOLD WHARF PROPERTY, Queen's-road, Hammersmith.

The Vestry of the Parish of St. Mary Abbott's, Kensington, in the Administrative County of London, hereby give Notice that they are prepared to accept TENDERS for the PURCHASE, in separate lots, of their valuable FREEHOLD and LEASEHOLD RIVERSIDE WHARVES, in Queen's-road, Hammersmith.

The Leasehold Wharf is held by the Vestry direct from the Freeholder for a term of 99 years, from JUNE 24th, 1864 (leaving about 65 years unexpired), at an annual rental of £120.

Full possession will be given on completion of the purchase.

Forms and conditions of Tender, with plan, can be obtained at the Offices of the Vestry Clerk, or of the Surveyor, Town Hall, Kensington High-street.

Tenders must be delivered in a sealed cover at the Vestry Clerk's Office, on or before FOUR p.m. on SEPTEMBER 9th, 1898, endorsed "Wharf Tender," and signed by the party tendering.

WM. CHAMBERS LEETE, Vestry Clerk.

Town Hall, Kensington High-street, W.

July 18th, 1898.

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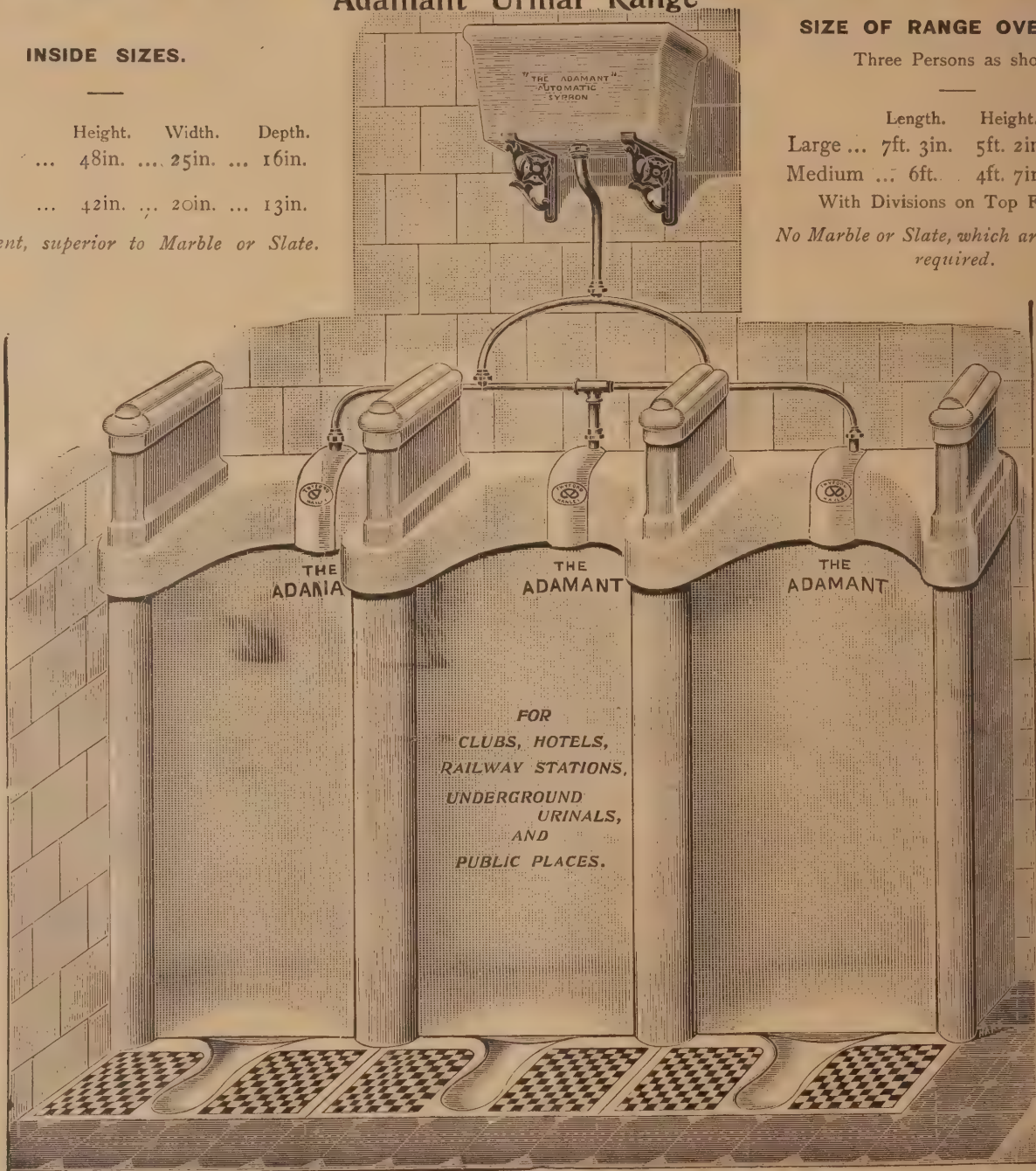
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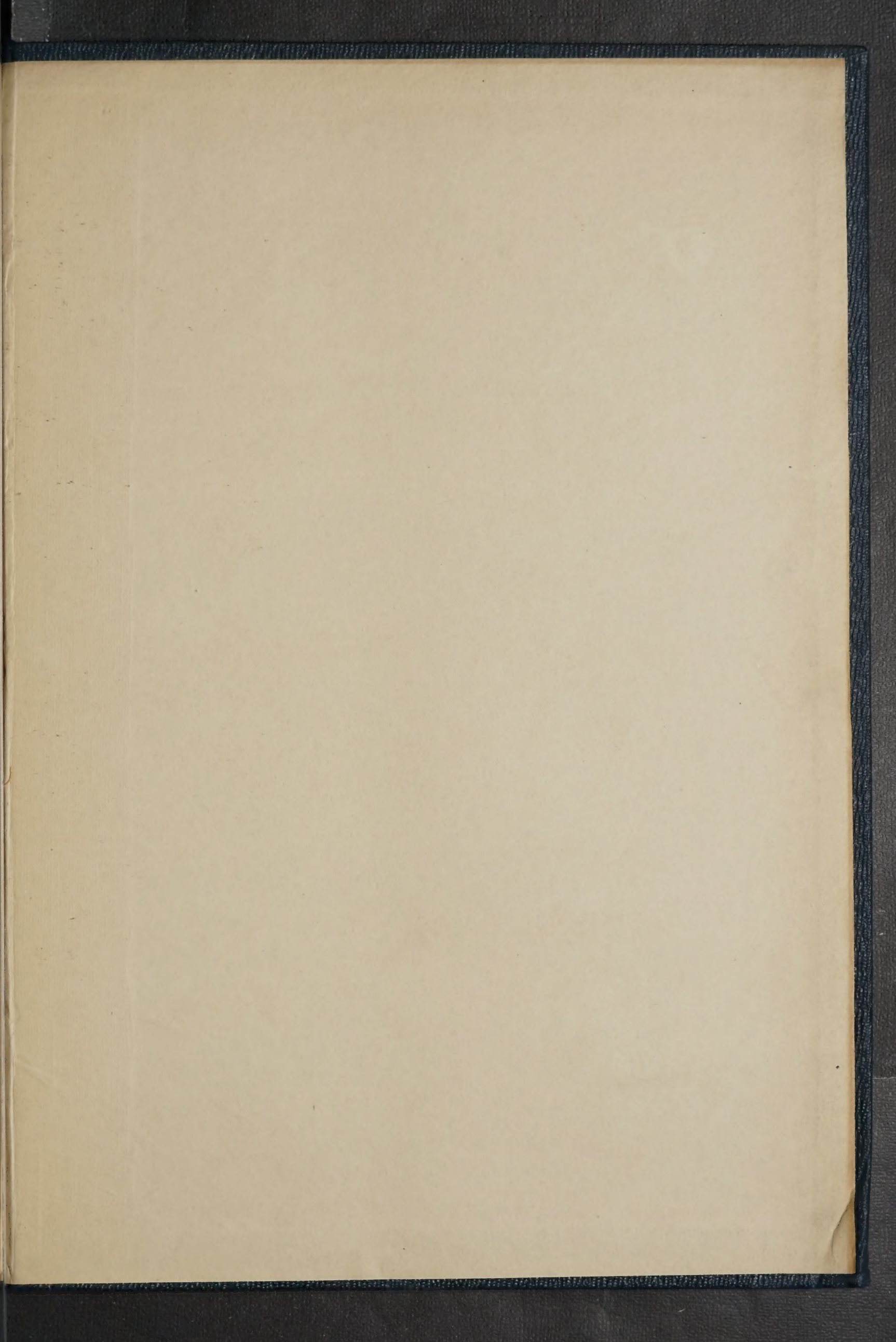
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